PW
PRACTICAL
WINERY & VINEYARD
NOVEMBER/DECEMBER 2004

Growing profits by getting smaller

Analyzing wine production costs

Barrel profiling to attain quality/consistency

Assessing red wine astringency

SUPPLIER SHOWCASE
PROFESSIONAL SERVICES

Sustainable winegrowing practices

SMART VITICULTURE
Vineyard design the best way

This ad was bigger
before we
started cutting costs

707-746-0353 • sales@corksupplyusa.com

ENVIRONMENTAL MANAGEMENT SYSTEM / ISO 14,000

Ramondín Cápsulas, S.A. management has been audited by AENOR, complying with the requirements specified by ISO 14,000, being, once more, the first company in our industry to be awarded this certification. This new certificate, with special emphasis with the environment, continues our commitment and our constant effort to achieve total quality in the service to our customers and strengthens our position worldwide since 1890.

RAMONDÍN CÁPSULAS, S.A.

Polígono Industrial Casablanca, s/n. 01300 Laguardia. Alava. Spain.
Phone: (+34) 945 620 000 / Fax: (+34) 945 620 062
Website: www.ramondin.es / E-mail: ramondin@ramondin.es

RAMONDIN USA, INC.

2557 Napa Valley Corporate Drive, Suite G Napa, CA 94558
Phone: (707) 944-2277 / Fax: (707) 257-1408
Website: www.ramondin.com / E-mail: ramondin@ramondinusa.com

PRACTICAL WINERY & VINEYARD

EDITORIAL
CIRCULATION
ADVERTISING

58-D Paul Drive,
San Rafael, CA
94903-1534
415/479-5819
www.practicalwinery.com

PUBLISHER
EDITOR
Don Neel

ASSOCIATE
PUBLISHER
Tina Vierra

SENIOR
EDITOR
Carol Caldwell-Ewart

PUBLISHER'S
ASSISTANT
Johanna Rupp

ASSOCIATE EDITOR
Andrew Hidas

ART DIRECTOR
Terry Lockman
Lumina Designworks

CONTRIBUTING
EDITORS
Eleanor Heald
Ray Heald
Michael Terrien
Ed Weber
Bruce Zoecklein

CONTRIBUTING
WRITERS
Jack Heeger
Millie Howie
Craig Root
Dr. Richard Smart

ADVERTISING
REPRESENTATIVES
Wettstein, Nowell
& Johnson, Inc.
Leslie Chase
707/765-2546

PRACTICAL WINERY & VINEYARD (ISSN 9739-8077) is owned and published by PWV Incorporated. Published bi-monthly at subscription rate of $31/year. Outside the United States, please add $10US, sea mail; $18US, air mail. Postmaster: Please send change of address to 58-D Paul Drive, San Rafael, CA 94903. Back issues: $5 prepaid. News media may use no more than 1/4 page of material per issue provided that PRACTICAL WINERY & VINEYARD is credited.

PRACTICAL WINERY & VINEYARD

NOVEMBER/DECEMBER 2004 • VOL. XXVI, NO. 4

CONTENTS

SUCCESSFUL BUSINESS
5 *Growing profits by getting smaller*
By Deborah Steinthal

BARREL PROFILING
16 Helping winemakers attain quality and consistency
By Dr. Jim Swan

INDUSTRY NEWS
31 Jon & Eileen Fredrikson — Industry champions win Integrity Award
By Tina Vierra

CALIFORNIA ASSOCIATION OF WINEGRAPE GROWERS/ WINE INSTITUTE
36 Advancing sustainable winegrowing practices

WINEMAKING
45 Assessing red wine astringency
By Douglas O. Adams, James F. Harbertson, & Matthew S. Reid

WINERY ACCOUNTING
51 Analyzing wine production costs
By Jeff Sully, Dr. Terry Lease, & Jon P. Dal Poggetto

SHOWCASE
61 PROFESSIONAL SERVICES

36 Sustainable cover crop in Robert Sinskey Vineyard, Napa, CA. (Photo by Kirk Grace)

READER SERVICE

75 Editorial Index
78 Calendar
77 Bookshelf
80 Advertiser Index
83-84 Letters to Editor

DEPARTMENTS

80 PERSONNEL POINT OF VIEW
Successful change
By Anne Heron

82 SMART VITICULTURE
Vineyard design — the best way
By Dr. Richard Smart

COVER PHOTO: Composted grape pomace (winemaking waste of skins, seeds and stems), is spread on the Hess Collection Vineyard on Mont La Salle, Napa, CA. (Photo by Don Neel.)

"To stimulate continuing improvement in the wine industry."

GROWING PROFITS BY GETTING SMALLER

BY Deborah Steinthal, Scion Advisors

Your winery costs are ever growing: labor expenses, worker's compensation, and the cost of selling in a crowded marketplace. Meanwhile, your revenue growth is less vibrant than before. With these pressures, how do you beat margin erosion? Your choices: you can improve performance by applying better management practices and/or you can adopt a different business strategy.

"You cannot cut, outsource, or downsize your way to economic success — you have to grow. Growth, very simply, is the one business imperative," stipulates an April 2003 article in *Fast Company*. This is a very provocative position, especially if you check out businesses that actually grow during tough times in an industry or an economy, businesses such as Honda's Pilot SUV; John Deere Landscaping; Cardinal Health; and Joseph Phelps Vineyards (St. Helena, CA).

These businesses have at least one thing in common: they carefully developed and implemented innovative strategies with the intention of growing when other companies were cutting and downsizing their organizations.

Some of these companies may not be familiar, but they are all focused on creating revenue, profits, and shareholder value by mobilizing assets that reflect their history and experience to make a compelling product offering and direct it toward a unique customer segment or market niche. Joseph Phelps Vineyards' example demonstrates what it takes to embrace an approach to growing your winery more profitably in today's marketplace.

JOSEPH PHELPS VINEYARDS

What constitutes growth and why grow?

Fourteen winery participants recently pondered this question in a quarterly CEO Forum led by Scion Advisors (Napa, CA) and MKF Group, LLP (St. Helena, CA). These CEOs represent a cross-section of wineries in Napa, Sonoma, and Monterey counties. Their conclusions tell an interesting story that is pretty much in agreement with the *Fast Company* article.

> "Growth is the process of expansion or evolution. Growth produces a different mindset — consider how hard it is to manage 'stability.' Forward momentum can absorb market setbacks more readily, keep core brands vital, stimulate high performers in organizations, increase profits so you can 'become who you are,' and force you to properly manage your wine product through its product lifecycle."

Traditionally, wine industry growth strategy has been production-driven and focused on volume growth dictated by availability of grapes. Production-driven strategies are no longer working successfully for many wineries.

The combined dynamics of channel consolidation and increasing competition (characterized by severely declining numbers of wine distributors and by an escalating number of wine SKUs on the U.S. market) have made it much harder for wine businesses to market and sell wine. Eating into winery profits, sales and marketing costs are escalating by 20% to 30% annually, and each year wine inventories require considerable *pushing* through the wholesale system.

Distributors and retailers are exacting costly "favors." Marketing directors invest larger and larger sales allowances into sales programming, distributor management, and bonusing, and sales teams direct an ever more significant effort into building key account relationships. This environment is particularly detrimental to smaller wineries that have very little muscle with three-tier distribution channels.

How best to grow profits — Do you underscore volume or price?

Volume growth, the preferred choice for fueling winery profits for many brands, is haunting countless winery owners who have underestimated the cost of higher volume production and especially the expense of higher volume sales and marketing. The highest quality, highest-priced producers appear most impacted.

Business simply has become overly complex for the (typically) smaller producers to successfully sell increasingly higher volumes of wine through a three-tier system already overburdened by brand proliferation and distributor consolidation.

This distribution bottleneck is placing unbelievable pressure on wine industry leadership to become more professional in how they compete in the marketplace, more disciplined in managing costs and pricing, and to seek out innovative business strategies focused on what they do best. Some winery CEOs, adopting new options for growth, are showing

signs of being well ahead of their competition.

In response to this more complex environment, a few wineries are growing profits by actually getting smaller in volume. One of the most visible of these is Joseph Phelps Vineyards. In 1991, the winery was annually producing in excess of 120,000 cases of wine and had 26 products in its portfolio.

Today, production is slightly under 90,000 cases and more than 80% is in three wines that are sold only through the three-tier channels. The three wines are Le Mistral ($25 retail), a Syrah/Grenache blend from Monterey County; Napa Valley Cabernet Sauvignon ($45); and Insignia ($125), a Bordeaux blend. But because of a strategy extremely focused on advancing quality, dollar sales have more than tripled and profits have soared — an unusual result among today's marketing schemes.

"We were very sure that, in order to remain both very independent and very successful, we had to find a distinctive niche," explains Shelton. "We all agreed that our niche would be at the top of the luxury wine segment, and that we would be the benchmark winery in that rarified niche. Once we determined that was to be our goal, then we could focus on every effort it would take to get there and stay there."

This winery case study is fascinating in that the winery leadership team made classic decisions about strategy and stuck to its plan through implementation — the trademark of successful companies in just about any industry. This team also demonstrates an uncanny ability to recognize its mistakes, learn from them, and relentlessly correct them. The following documents Joseph Phelps Vineyards master plan and its successful implementation.

Owners' culture, vision — Assess your environment realistically

In early 1994, the Joseph Phelps ownership team (comprised of Joe Phelps, company president Tom Shelton, and winemaker Craig Williams) took a long hard look at the strengths and weaknesses of the winery's operations, wines, and market position. When the ownership team committed to changing its business strategy to grow profits, team members also factored in personal goals. They had neither the desire nor the expertise to become higher volume producers and marketers.

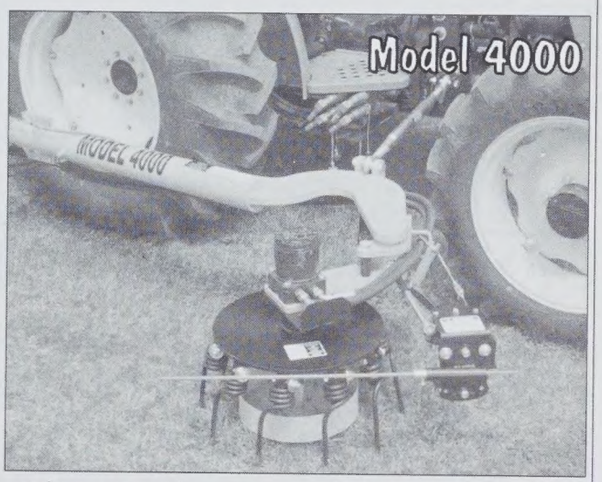
"We are not in the same business as Kendall-Jackson, Beringer Blass, and Robert Mondavi Winery," reflects Shelton. These other wineries have totally different business models and are extremely efficient at the higher volume, mid-price tiers. Focused on lower volume, Joseph Phelps Vineyards has a huge investment in the highest-quality vineyards and production.

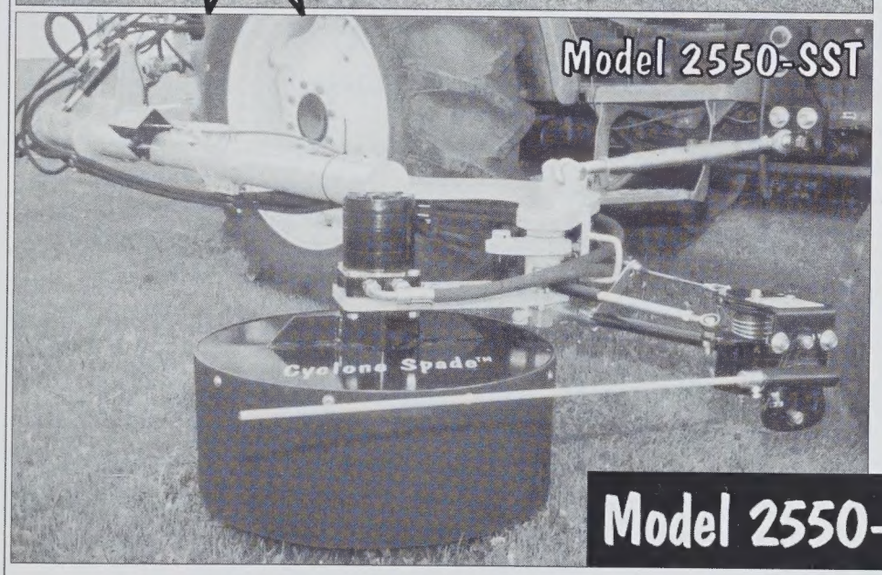
American AgCredit
MONEY FOR AGRICULTURE
Taking Care of the Farmers Who Take Care of America
In a business defined by variables, we offer the one constant you can depend on. We will be there with the financing your vineyard needs in good vintages and bad.
We're American AgCredit and you're our only concern.
Lending to Agribusiness & Agriculture for 85 years
Santa Rosa (707) 545-7100
St. Helena (707) 963-9437
Petaluma (707) 793-9023
Ukiah (707) 462-6531
(800) 800-4865 ◆ www.agloan.com
EQUAL OPPORTUNITY LENDER

Introducing NEW Models and 2004 Closeout Special Prices!

Kill weeds without herbicide or hand labor and save money now!

Check out the **NEW** Model 4020 and Model 4000 Weed Badger in-row tillers. Take advantage of **big savings** on the remaining 2004 inventory and get **Closeout pricing** on all Model 2550-SST in-the-row tillers. Please call soon. There is limited 2004 inventory!





Now is the time for sanitizing and under-canopy fall cleanup with versatile in-the-row tools.

Model 2550-SST Closeout Sale Prices!

FREE video or DVD presentation. Call for our new catalog and see the most highly advanced in-row tillers and mowers in the world.

WEED BADGER®

5673 95TH Avenue SE
Marion, ND 58466 USA
Phone (701) 778-7511
Fax (701) 778-7501
e-mail weedbadg@drtel.net

Call 1-800-437-3392 or visit our website at www.weedbadger.com

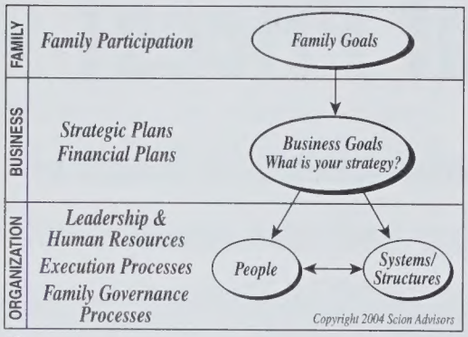


Figure I

Innovative business strategy — Build on history and expertise

Figure I illustrates succinctly how the owners of Joseph Phelps Vineyards approach their challenge. They articulate long-term profitability goals, design business strategies to match real market opportunity, and then carefully align the right people, structures, and systems to support proper execution.

"We realized fairly quickly that the only place we could be competitive and make money was at the top of the luxury wine segment," notes Shelton. "We also realized that our expertise is our unique ability to build-out the quality of our wines. This absolutely is our core capability."

The Joseph Phelps Vineyards plan to grow smaller in product mix and total production and larger in revenues incorporates three unassailable strategies. These strategies are inextricably linked. Constrained by a nominal marketing budget, Shelton understands that all three have to be in place for the growth plan to be successful. If one of these strategies does not work, profitability goals will not be met.

1. A total commitment to quality reflected in product price.
2. Product positioned for leadership in a distinct market niche.
3. Product identity that is differentiated by wine style and brand.

Very simply, in order to be profitable in a business that incurs very high product, sales, and marketing costs, the Joseph Phelps pricing strategy needs to target the highest price tier in the luxury category.

Execution excellence — The right decisions surface

What is interesting about this winery's story is that Joseph Phelps Vineyards has been successful in execution. All too often, a business starts out with a compelling plan and good intentions, but at the first bump in the road or at the first opportunity; the leadership team changes strategy and later wonders why it never achieved its objectives. In fact, research shows that most successful companies have two things in common: a strong leadership team and an unwavering commitment to implementing their core business strategy.

EVALUATING SOIL FERTILITY FOR WINEGRAPES

Three-day workshop presented by Neal Kinsey, Kinsey Agricultural Services, Inc.

Features winegrape soils from various grape-growing areas of the world with emphasis on winegrape soils of the U.S., and particularly soils from the west coast.

JANUARY 24, 25, 26 — 2005

LOCATION: The Delta King Hotel, 1000 Front St., Sacramento, CA

This presentation utilizes 100 actual soil tests taken for numerous wineries and vineyards from many wine-growing areas. All samples have been analyzed by using the Albrecht Method; a specific system of soil testing utilized to establish desired nutrient levels for use in winegrape production. The basic foundation for determining each nutrient as required for achieving excellent soil fertility is provided as a specific formula. Each formula is provided and explained by subject covered, and is included as a handout in participant's notebooks, along with copies of all the soil tests.

DAY 1: ***Working with soil tests, pH, and liming***
DAY 2: ***Building vineyard fertility with major nutrients***
DAY 3: ***Micronutrients/establishing fertility for new vineyards***

COST: **$1,250 PER PERSON** — includes lunch and breakfast daily with accommodations at the Delta King Hotel, Sunday–Tuesday nights

or **$850 PER PERSON** — includes program and lunch only each day

CONTACT: Kinsey Agricultural Services, Inc.
Tel: 573/683-3880 or 683-4800, or *www.kinseyag.com*

ADVERTISEMENT

Sierra Vista Winery gets an $11.24 electric bill

PG&E paid them $45,000 to install solar energy system

Would you like to have an electric bill for $11.24 or less? Put the abundant power of the sun to work for you using a solar electric system, and take advantage of the amazing subsidies from the California Energy Commission (CEC) and PG&E. Sierra Vista Winery obtained a $45,866 rebate. You, too, may qualify.

When John and Barbara MacCready of **Sierra Vista Winery opened their first bill and saw it was only $11, they knew they had made the right decision**. It was under **Premier Power's** guidance and experience that Sierra Vista Winery decided to start spinning its electric meter backward and conserving energy with one of the largest solar power systems in El Dorado County. The benefits of the installation of their 14.4 kW system to operate their winery in the Sierra Foothills included the reduction in electricity bills. The utilization of solar panels will absorb the highest cost-of-electricity use in the production of wine from their 42-acre mountain vineyard.

"The only cost comes from the solar panels and the installation of the system, which is reasonable once you factor in the rebates for about 50% of the cost of the installed system, federal and state tax credits, and the special accelerated depreciation advantages," said John MacCready.

Thanks to the rebates offered by the CEC and PG&E, the cost of installing solar power systems can be drastically reduced. Currently the CEC offers $44,536 as an incentive to purchase a medium sized commercial system (18.1kW) and $136,044 for a medium-size commercial system (36.9kW). However, the rebates are steadily dropping every 6 months, which means that **wineries need to act immediately** in order to receive the best rebate on a solar system. The MacCreadys have already taken advantage of the rebates and are currently enjoying the lowest electric bills they have ever received!

Premier Power installed a 14.4kW roof-mounted photovoltaic system on the wine-tasting building using GE Energy panels.

Because the solar electric system is connected to the PG&E grid, it is capable of selling electricity back to PG&E, a program known as net metering. Now you become a power producer, making your electric meter spin backward, keeping overall usage in the baseline tiers where those kilowatts used are much less expensive (Figure 1). These savings are dramatic, especially for wineries using crushers, refrigeration, HVAC, water pumps, coolers, etc.

Another benefit for Sierra Vista Winery in using solar power is the environmental conservation. To provide us with electricity, power plants in the U.S. emit about 10.2 million tons of sulfur dioxide (SO_2) every year, which reacts with other chemicals in the air to form tiny particles that can gather in a person's lungs. SO_2 can exacerbate temporary breathing difficulty in people with asthma who are active outdoors, cause respiratory ailments, and aggravate heart disease in people who are exposed to it over a long period.

Photovoltaic energy utilizes no hazardous materials, produces no hazardous waste, and is essentially a clean, green, naturally-produced resource from the sun.

The solar electric systems come with a 25-year production warranty, and the panels will last for over 30 years. Just think, any winery can lock in its electric rates now for 25 years with a solar system, and forget about skyrocketing energy costs due to any future energy crisis.

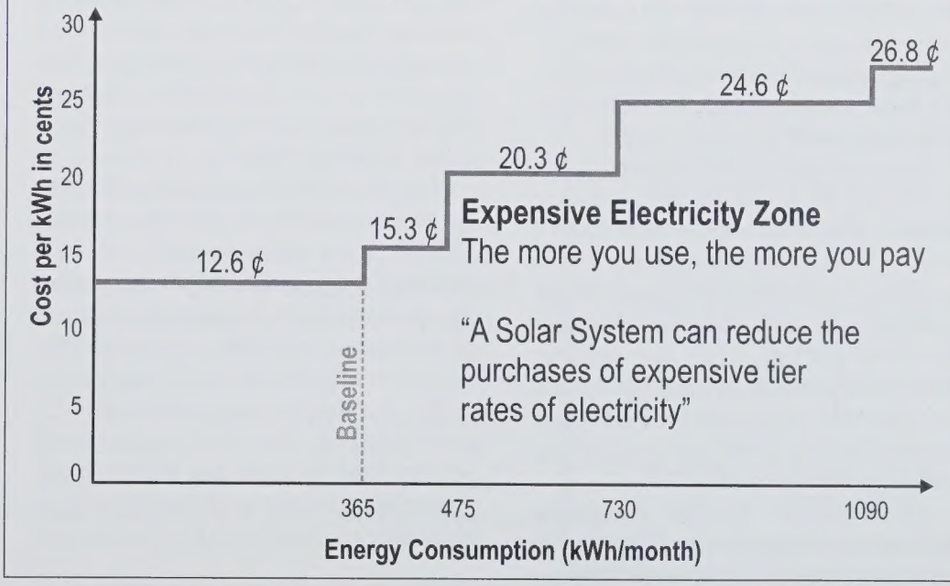
Dean Marks, president of **Premier Power**, pointed out "these systems will pay for themselves within four to seven years, then it's free electricity which translates to money in the bank. The environmental benefits alone make installing a solar electric system one of best things a winery can do."

Integrating solar electricity into their energy mix, Sierra Vista Winery is lowering their operating costs and reducing purchases of expensive tier rates of electricity. Sierra Vista is improving the health and quality of life in El Dorado County, while contributing to the sustainability and energy independence in California. With PG&E rates up 30% so far this year, solar becomes an even better investment.

◆

FOR MORE INFORMATION AND A FREE INFORMATION PACKAGE, CALL **(916) 939-0400** OR **CALCULATE YOUR SAVINGS** AT ***www.premierpower.com/calc***

Figure 1– The more you use, the more you pay —
Example of an electric company Tier Rate Structure



Lessons learned from Joseph Phelps Vineyards case study

Does one strategy fit all?

Do not try this without adult supervision!

Imagine going to your doctor, and before you've had a chance to describe your symptoms, the doctor writes out a prescription and says, "Take four of these two times each day, and call me in 10 days." "But — I haven't told you what is wrong," you say. "How do I know this will help me?" "Why wouldn't it?" replies the doctor, "It worked for my last two patients."

No competent doctor ever practices medicine like this, nor does any sane patient accept such treatment. Yet some consultants routinely prescribe such generic advice, and some managers routinely accept such therapy in the belief that, if a particular course of action helped other companies succeed, it ought to help theirs too.

Not all wineries have the appetite or the ability to follow the Joseph Phelps Vineyards' strategy. Only a blessed few have the capacity to become the category leader, command top prices, and maintain this position over the long run.

However, a number of wineries are adopting a similar strategy, growing average revenue per case by reducing overall volume and actually shifting emphasis from growing their wholesale channels to committing significant resources to developing their more profitable consumer-direct channels.

Some of these same wineries have succeeded in doubling and tripling operating income within three to five years. These strategies are also about growing profitability, but these wineries are emphasizing channel-mix over pricing. They are shifting more products to more profitable distribution channels, rather than claiming prices in the top rank of the luxury category.

What Joseph Phelps Vineyards and these wineries are learning is that you can show improved performance by growing smaller and more focused in product mix (see *PWV* September/October–2004, "Prune Your Portfolio"). You can use the resources you've freed up to make your brand stronger in all channels and more attractive to customers. Thus, a growth-strategy focused on margin-growth and not volume is potentially within reach of many smaller wineries.

When clients of Scion Advisors are contemplating a change in business strategy, we advise them to consider at least four critical steps. These steps parallel the ones embraced by Joseph Phelps Vineyards.

GET CLEAR ON YOUR FAMILY/OWNERSHIP GOALS AND VALUES. Business owners need to define business goals that specifically support their personal needs. The process of scrutinizing goals is particularly important for families in transition, principally, when a new generation decides to participate in the family business. Family goals can include the explicit need to take profit out of the business to fund education or pay down the purchase of the business from elders. They may include the assessed investment requirements for funding future growth in shareholder value.

The wisdom behind goal-setting is simple: "If you aim for the tree, there is a good chance you will hit the tree. But, did you really want to aim for the tree?" A well-defined set of goals gives your strategic plan integrity and is the basis for evaluating performance and making decisions about the future.

For example, if you are looking to grow profitability and brand equity by emphasizing upwardly mobile pricing, your goals might be stated as: grow to $270 average price/case at a volume of 75,000 cases, yielding an operating income of $3 million in 2008. An important component of goal setting is a well-articulated vision that focuses the business on something family and business participants are motivated to be part of, is everlasting, and helps the organization survive change to endure beyond the bumps in the road.

CONDUCT A REALITY CHECK AND ASSESS YOUR CURRENT SITUATION. You may need to appraise the strength of your winery's operations, wines, and position in the marketplace by seeking to understand the essential building blocks of the business: what are the style and quality of the wines and what is the potential for product improvement, at what cost; what is the value proposition to each customer tier and how should this change in the future; and what are your competitive position and points of differentiation and how can these be more effective?

Third party assessments of your operations, your position in your market, and your wine style can help you gain a more balanced perspective of the health of your business. By assessing your business performance against other "like-businesses," you may discover your strong margin growth is not as strong as you thought.

"Corporate-speak" from your distributor may lead you to reduce your prices, but a robust survey of your retail and restaurant accounts and consumers helps you understand who your competitive set actually is.

Your "house-palate" may lead you to believe your wine is of the right quality to compete in the $30 Cabernet category, but an invited group of "outside" tasters reveals you have overestimated its quality at that price point.

If your winery has the right building blocks in place, you have increased opportunity to implement more innovative strategies. If not, your business may not be strong enough to successfully absorb an aggressive growth plan.

SET IN PLACE YOUR CORE BUSINESS STRATEGY. The plan you develop must be geared toward achieving your stated family and business goals. At a minimum, your plan must identify strategic goals against

a timeline and address the key ingredients that are necessary to achieve these.

Consider answers to these essential questions: What can you leverage from your past to achieve your goals? What existing core strengths can you leverage into a competitive position in the future? How will you compete in your target market? What are your cornerstone strategies to developing the future business?

EXECUTE WITH EXCELLENT PEOPLE, PROCESSES, AND SYSTEMS. Before you are ready to move out with your plan, you will need to consider your enterprise's ability to support its execution and to identify important organizational gaps. Companies that over-estimate leadership, organization, and process/system readiness are frequently off dramatically from plan projections by years and by millions of dollars in revenues and expenses.

Leadership readiness, a large component of organization readiness, has been dramatically undervalued by many CEOs in the wine industry. Many a winery struggles with the issues around hiring new, more professional staff, or showing loyalty to past employees through investing in their development needs. The cold reality is that some of these employees may take years to develop. The winery ends up missing a critical window of opportunity and spending much more in soft and hard development dollars than if it had hired higher priced, qualified leadership.

A gap analysis conducted at three levels helps you assess the cost and timing of implementing the proper delivery infrastructure. Assess:
1. Leadership team skill set and know-how,
2. Organization strategy and structure,
3. An appropriate underpinning of reporting, planning, and employee development processes and systems.

By characterizing enterprise-readiness to execute the plan, you increase your probability of achieving your profit goals on time.

For a leadership team to succeed at least two criteria have to be met: it must have the right skills and a process that yields good decisions. Internally, the Joseph Phelps Vineyards team came together as a strong group, capable of making tough decisions that were aligned with its goals.

Fortunately in the early 1990s, with Shelton's arrival, the Joseph Phelps leadership team was extremely strong in each functional area of the business; Craig Williams in winemaking, Damian Parker in wine production, Dave Lockwood in financial operations and planning, and Shelton in marketing, sales, and general management. And, they each realized that mutual respect and trust for each other's abilities in his area of expertise was at the core of their ability to demonstrate balanced decision-making. This balancing act was soon put to the test.

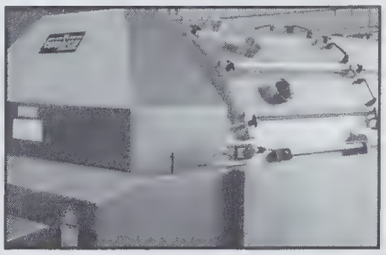
First, they gave up some sacred cows and seriously pruned their wine portfolio. Joseph Phelps Vineyards had built a reputation on product innovation. In the early days, the winery had established a market position around Chardonnay, Riesling, and Sauvignon Blanc. Over 30 years, it had expanded into the Rhône category, building out a portfolio of 26 wines.

In the 1980s, the Joseph Phelps Vineyards foray into fighting varietals almost brought the whole ship down. But in the 1990s, the winery was at the end of its innovation cycle, and the team soon became concerned about how to maintain category leadership as a mature brand while demonstrating margin growth.

"The wine market does not reward innovation, and we were finding it difficult to be a leader in this industry with innovative wines," says Shelton. "We were ever so aware of our weak-

Euromachines
vineyard and winery equipment company
Visit us at www.euromachinesusa.com

Reliable equipment starts with our quality product line including the **EUROPRESS**, manufactured at our parent company in Germany.



We are the exclusive North American distributor of **BRAUD Grape Harvesters**

Representing quality equipment from RAUCH with pumps and destemmer-crushers and RIEGER custom stainless steel tanks to complement our full line from harvest, crush, to fermentation and storage.

Dedication to service and customer satisfaction is our commitment.

If you are looking for new or reconditioned vineyard or winery equipment, the team at **Euro-Machines** will help find the best equipment for your needs.

For a complete list of products and references, or parts and service, please contact **Euro-Machines**.

EURO-MACHINES EAST:
PO Box 843
Culpeper, VA 22701
PHONE: 540/825-5700
FAX: 540/825-5789

EURO-MACHINES WEST:
4950 Fulton Dr. #E
Cordelia, CA 94534
PHONE: 707/864-5800
FAX: 707/864-5879

www.euromachinesusa.com

nesses surfacing around underperforming vineyards and brands. Decisions we made years ago were extremely costly to get out of, but I am utterly convinced we'd be in a very different position today if we had focused all of our energy years ago on what is now our core business."

Shelton describes a phenomenon that is not unusual in this asset-intensive industry, where winery owners, faced with costly decisions, must make hard choices that inevitably commit them to an unalterable path.

Sometimes a decision yields long-term gains and sometimes it becomes an asset trap and straps profitability. This asset trap is illustrated by an all-too-familiar story. A small family estate vineyard owned 700 acres planted to seven different varietals and supplied grapes for wines mostly in the $7 to $12 category and some in the $15 to $20 category.

A glut undermined their grape sales, and the family decided to diversify into winemaking, eventually producing 15,000 cases of wine with a portfolio of 22 wines in the same price categories. Their objective was to grow to 100,000 cases and reduce their dependency on grape sales, a much less profitable and predictable business. However, they soon realized that they were actually losing money on their lower priced wines, which represented 80% of their volume. They were faced with the recurrence of their original problem: no profits.

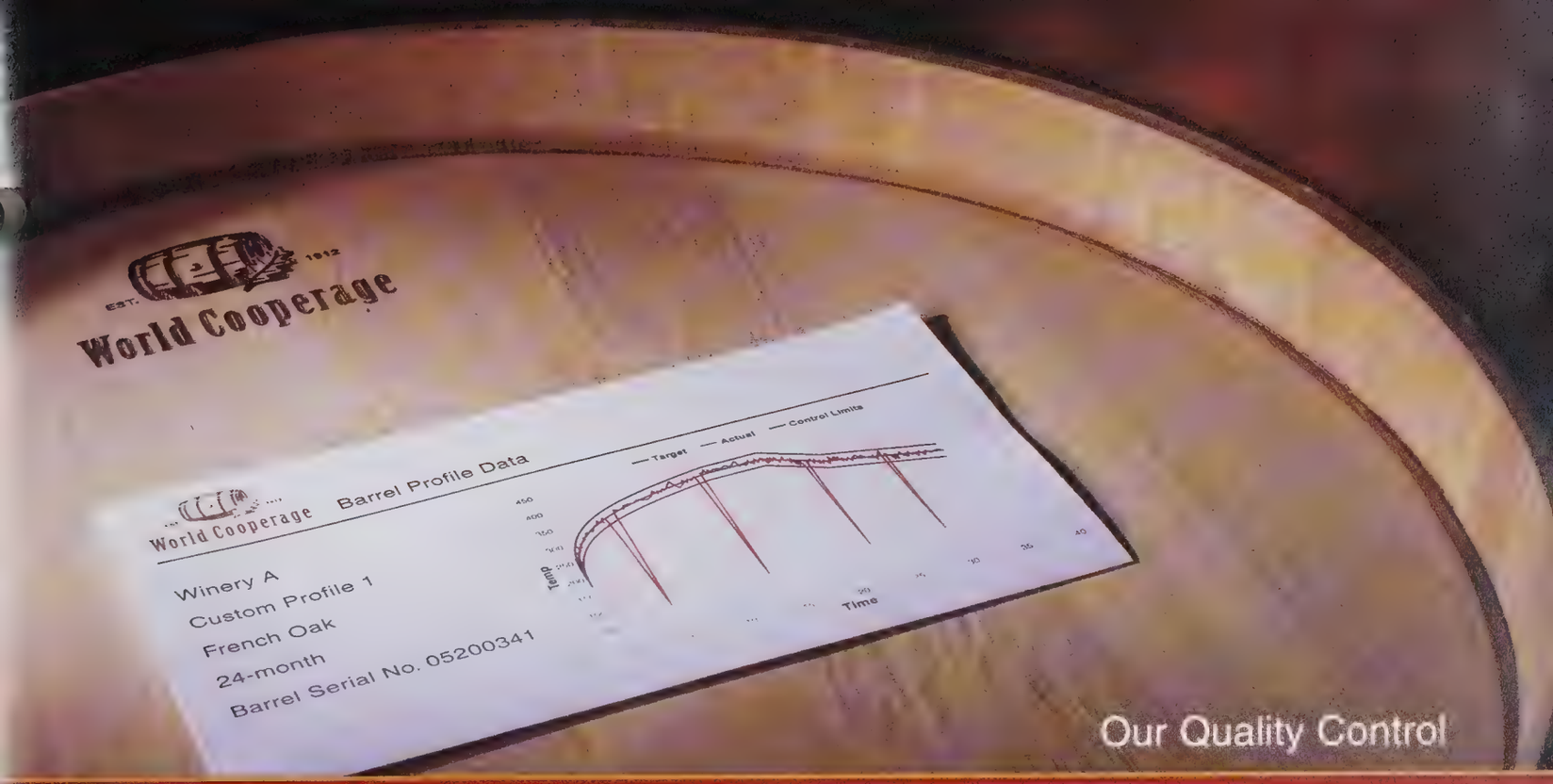
Unfortunately, the potential solution was severe. They needed to transition their winemaking operations away from the low-end to higher priced wine production by replanting a significant portion of their vineyard to their best-selling, highest-priced varietal, to reduce their portfolio to two or three wines, to shift their growth strategy to emphasize profits not volume, and perhaps even to sell off non-strategic land assets to properly capitalize the business.

These are difficult, costly choices of the sort that Shelton recognizes all too well. As a result of such painful lessons and mindful of what it takes to get out of a bad decision, his team is more cautious in its choices and decisions and spends much more time weighing the outcomes and understanding how and where the winery can be successful.

Distribution channels — Never rest on your laurels

Shelton readily admits wineries large and small in this industry have been forced to share the same, mandatory three-tier distribution infrastructure, which is proving to be quite dysfunctional for smaller brands. Shelton has faced a considerable challenge in communicating the

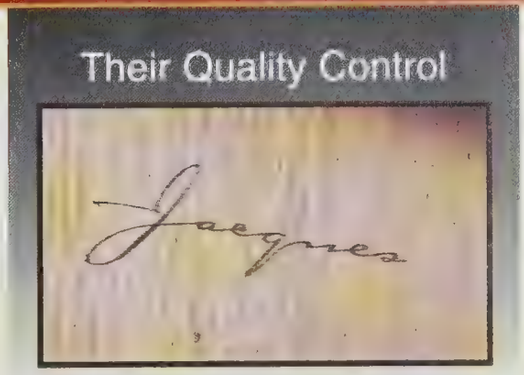
KDL®
(POTASSIUM DEXTRO-LAC®)
Helping
Nature
Work℠
Improves Grape Maturation and Wine Quality!
KDL® has a proven field record showing it promotes uniform grape maturation and statistically replicated data showing it increases wine color density and phenolic levels. KDL® – designed for vineyard managers ... loved by quality winemakers.
Agro-K Corporation
8030 Main Street, NE
Minneapolis, MN 55432
800-328-2418
www.agro-k.com
AGRO-K®



it's about creativity without surprises

Our revolutionary toasting technology known as "Barrel Profiling" provides different barrel styles, each with diverse, definable flavor profiles, all with guaranteed repeatability and predictability.

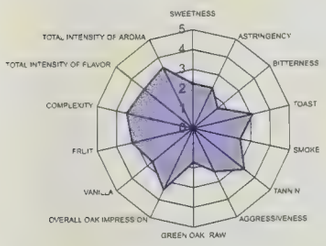
Barrel Profiling uses the latest temperature sensors, a computer network and touch screen monitors to toast every barrel we cooper. The cooper simply inputs that barrel's wood specifications and desired toasting profile. The computer directs the cooper to increase, decrease or maintain the barrel's current temperature so to follow the desired profile.



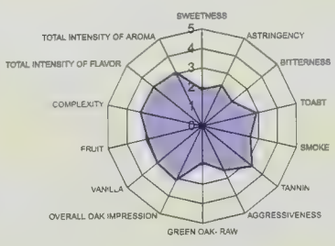
Our quality control prevents surprises if Jacques is out the day your barrels are toasted.

Sensory Profiles

Winery A Custom Profile 1



World Cooperage French Oak Traditional Barrel, Medium Plus Toast, 30-month



You can review our current barrel profiles or you can custom create your own for your wines, your vineyards and even annual harvest conditions. You choose the profile you want, we then use our new toasting technology for perfect replication. Find your creativity, and feel confident, with World Cooperage.

EST 1912

World Cooperage

Ask your account manager for our portfolio of Barrel Profiles.

1-888-33-COOPER (888-332-6673) or 707-255-5900. Visit www.worldcooperage.com/barrelprofiles for more information.

Joseph Phelps Vineyards strategy to distributors.

The issue is one of differing objectives. Distributors are incentivized by consistent volume box sales, and by necessity, the strategy forced on many luxury producers is an allocation model constrained by production variability. This lack of predictability in availability of their wines has made it tough on their distributor relationships.

Every winery experiences challenges during plan execution. For Joseph Phelps Vineyards, the 2000 vintage was such a challenge. The Insignia brand was built for the wine collector market, which is greatly influenced by gatekeepers Robert Parker and the *Wine Spectator*. Though Insignia received a 91 rating from Parker, the 2000 vintage overall was panned, and the impact on the Meritage luxury category was unfortunate. Sales slowed considerably.

Shelton's team, relying too heavily on the wine collector market, had not built out additional channels to broaden the wine's exposure across the market. In response to this oversight, the team has since made a major push into the on-premise market.

"In late 1990s and early 2000s, it was easy to be seduced by multiple years of easy markets," recalls Shelton. "We were focused on too many things and not paying attention to our knitting."

Fortunately, the winery's strategy focused on profitability provides them with margin for error, so they are able to sustain such bumps in the road with a certain degree of elegance.

Good plans take time — Plan during an up-cycle

"When we started working on the plan in 1994, we could have easily rested on our laurels, since the winery was doing so well," remembers Shelton. Demonstrating foresight, the team started implementing the plan, bought land in Sonoma County and started planting 100 acres five years ago — 80 acres in Pinot Noir and 20 in Chardonnay — with the same commitment to quality and the luxury wine segment now demonstrated in Napa.

Half-way through 2004, Joseph Phelps Vineyards, on the cusp of taking its 1994 plan to market, continues to build brand equity through product quality and telling its story. Through commitment to its long-term strategy, this privately held winery expects to maintain sustainable profitability and a highly differentiated position at the top of the luxury segment.

When queried about his concerns vis-a-vis the overnight *arrivists* in the luxury category, Shelton responds: "The wine market values and rewards newcomers. In fact, the barri-

HOUSE
Manufacturing Company, Inc.

"The Most Technologically Advanced Floating Brush Aerator on the Market Today"

HEADQUARTERS
3720 Highway 1 ~ P.O. Box 117
Cherry Valley, AR 72324
1-800-327-8299
FAX (870) 588-3517
email: info@housemfg.com

Authorized Representative
Ryan Process, Inc.
866 Podva Road
Danville, CA 94526
(925) 837-4832
FAX (925) 837-0670

Constant innovations since 1985 make House Aerators high production work horses with low maintenance requirements. We offer TGIC Powder-coated units as well as galvanized and stainless steel units.

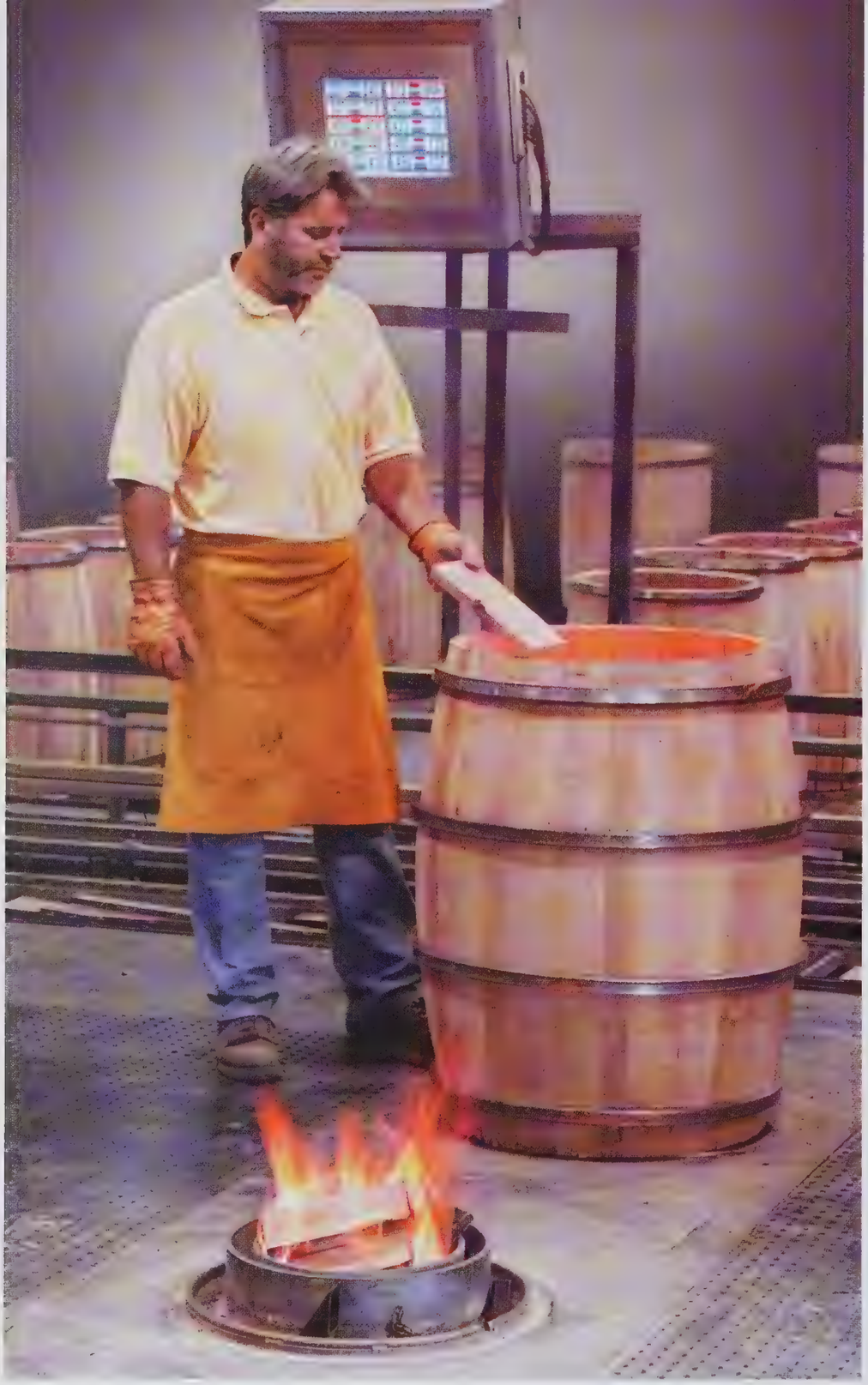
www.housemfg.com

Available in 2, 3, 5, 7.5, 10, 15, 20 and 25-HP Models.

ers to entry are very low. But the honeymoon tends to be short. These newcomers don't typically exhibit staying power. The long haul takes commitment and single-minded focus on quality."

In fact, Robert Parker in his recent newsletter paid homage to the venerable estates of Joseph Phelps Vineyards, Chateau Montelena, and Shafer Vineyards, all of which have clearly risen above the heap and continue to successfully demonstrate staying power — consistently building product quality and brand equity. ■

Scion Advisors founding partner Deborah Steinthal, a professional advisor, helps family-owned wine businesses prosper in an increasingly crowded and complex marketplace by improving management and leadership practices. In partnership with MKF, Deborah also leads the Winery CEO Forum, an executive program for an exclusive group of winery CEOs who seek stimulating discussion focused on critical leadership challenges. Deborah can be reached at deborah@scionadvisors.com or by calling 707/258-9130.



Infared sensor in triangle cover on the toasting pot (foreground) relays temperature data to monitor in background directing the cooper to increase or decrease or maintain the barrel's current temperature to achieve the desired toasting profile.

BARREL PROFILING

Helping winemakers attain quality and consistency

BY Dr. Jim Swan, PhD., Chemistry
Oak Research and Development Consultant
Longniddry, Scotland

Every wine barrel is unique, a product of the open fire and heat used to bend and toast the staves at the cooperage. Over the years, each cooperage has developed its own toasting regime, with its own fire pots, bending and toasting time, and heat levels.

Exposure of oak to heat brings about chemical and physical changes in the wood structure, and in addition to the toasting regime, grain tightness (oak growth rate), seasoning time, and oak species all contribute to barrel differences between cooperages.

World Cooperage has developed its own toasting pot and toasting regime, which led to its traditional toast — a long slow toast over a low- to medium-fire. Though each traditional barrel has a particular World Cooperage style, each also gives its own spectrum of flavors. Winemakers, however, seek more complexity by employing a range of barrels from multiple coopers to impart different subtleties of flavor.

In a premium-quality wine, some barrels may impart more vanilla and less toastiness than others. Some barrels may be more spicy or rich in oak tannins, while others create a much softer wine. No matter how diligent a cooper may be, every barrel receives a different amount of heat and some barrel-to-barrel variation is inevitable, because for the most part, coopers rely on visual inspection of color development to achieve the desired specification.

Changing the technology

In 2001, Patrick Eisen, a wood engineer from World Cooperage's French division asked why such old heating technology was still being used. He argued there were better ways to control the level of barrel toasting than simply relying on development of color inside the barrel (especially as none of the flavor compounds that are measured in oak-aged wine are colored).

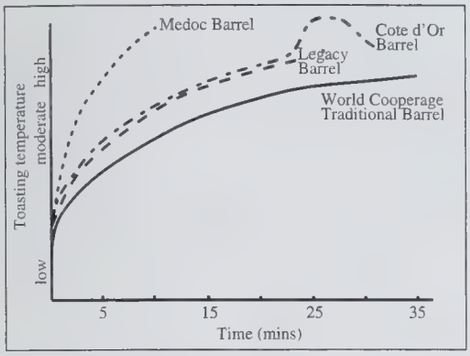


Figure I: Time-temperature curves used to toast conventional barrels in World Cooperage's portfolio.

Why, Eisen queried, in this era of computer technology, did the company not use a time-temperature profile? World Cooperage could still use the well-tried and tested oak fire to create heat but could record temperatures with a sophisticated sensor to guide the cooper. This could create different styles of barrels **and** produce them day-in and day-out with unheard of accuracy. The concept of "Profiling" was born.

To create the consistency that profiling could achieve and be able to custom-profile barrels to winemakers' requirements, a team of experts was assembled. Skills of engineers, winemakers from Kendall-Jackson Wine Estates (Santa Rosa, CA), and winemakers and coopers from Bordeaux, Burgundy, Barossa, and Napa Valley were brought together. The resulting team offered expertise in flavor and software development and construction of new toasting assemblies, plus expertise in the chemistry of toasting, detailed laboratory analysis, and data evaluation.

Initially 20 barrels from each of the conventional range of barrels were made as carefully and precisely as possible. In each case, infrared sensors measured the barrel's temperature. During this process, the fire pots were rotated and the infrared sensors measured the temperature on the internal surface of the barrel. The recorded data was then used to create a time-temperature curve for each style of barrel. These curves are shown in Figure I.

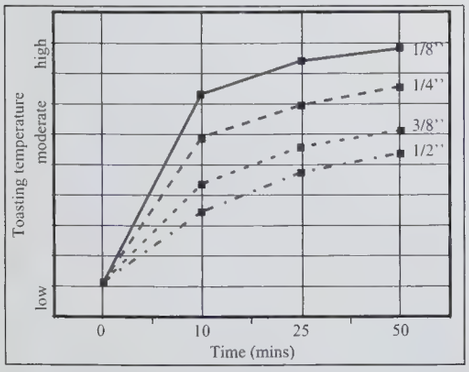
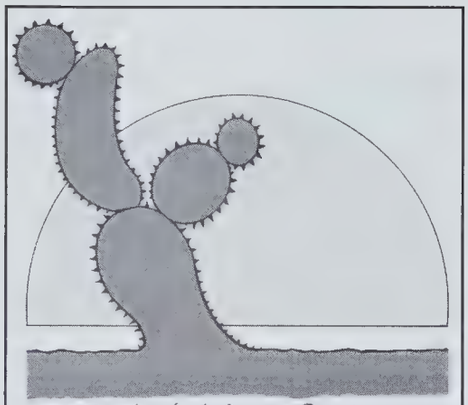


Figure II: Temperature gradient from the stave surface (inside barrel) to the core.

Coopers use the traditional method of heating staves to bend a barrel to shape.

Only one piece of the puzzle remained before the team was ready to listen to what winemakers wanted for their programs and to create custom-profile barrels designed to meet those needs. Toasting creates a large number of extractable flavor compounds in the wood, and it was necessary to know what chemical compounds created each of the desired flavors and how these could be formed during toasting. This involved close cooperation with Kendall-Jackson winemakers and par-

A Little Piece of the World as We Know it...
Our Northern California wine industry is a world unto itself with a language, culture and set of finite resources. With over 27 years of serving the wine industry, this world is as much a part of Summit Engineering as our dedication to every project.
Even if our part of your project is a small one, our structural, civil, water/wastewater or electrical engineers consider the whole picture. At Summit, we will support your team as though it meant the world to us.
Because, it does.
Your project, Our world.
707.527.0775
www.summit-sr.com
SUMMIT



St.Patrick's of Texas

Corkers—Electric w/ vacuum/gas $6150. Pneumatic.

Monoblock Filler/Corker starting at ~$20,000

Filling Machines vacuum and gravity

Wine Tanks

Crusher/Destemmers

Presses

French Oak Barrels

Pumps—frequency drive, flexible impeller

Plate Filters—Filter Sheets

Corks—Norcor of Portugal

Heat Shrink/Foil Spinners

Labelers

Sanitary Valves/Fittings

Thermowells/Thermometers

Refractometer $47

Wine Hose and Clamps

Custom S/S Fabrication

We stock parts. Schematics and manuals online.

24,000 sf devoted exclusively to winery equipment

www.StPats.com

1828 Fleisher Dr
Austin, Texas 78728
512.989.9727

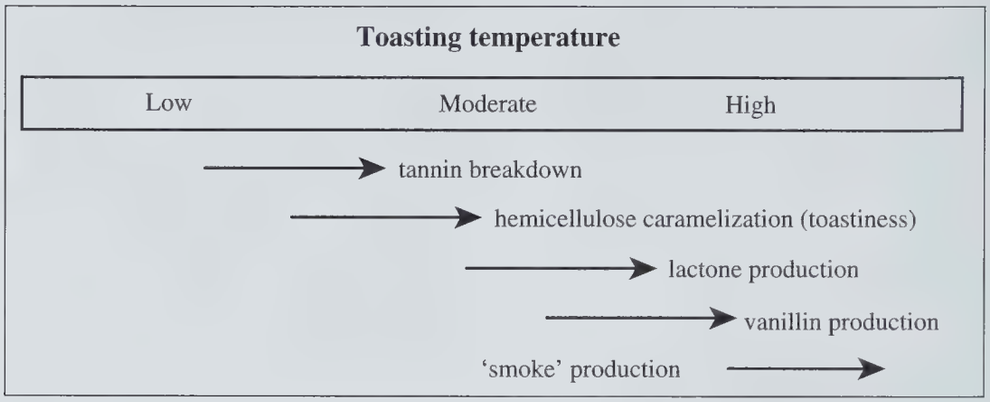


Figure III: Temperature ranges for formation of oak extractives in barrel toasting.

ticularly the Vintner's Reserve Chardonnay program.

Chemistry of toasting

During toasting of barrels, chemical and physical changes to the oak structure are extensive, much more so than in seasoning. Chemical bonds between the three polymeric building blocks — cellulose, hemicellulose, and lignin — are disrupted, notably the hemicellulose and lignin are degraded.[1] Major changes also take place in the oak tannins.[2] Initially tannins are broken down to smaller units and subsequently release free ellagic and gallic acids; however, these may also be destroyed if the applied heat is sufficiently intense.

Heat also leads to the formation of oak lactones, a notable feature of the flavor extracted from American oak.[3,4] A temperature gradient is created through the stave thickness, so the chemical changes are different throughout the staves, and the extractives available to wine vary according to the extent of wine penetration into a barrel.[5] Figure II shows the gradient throughout the stave depth during a laboratory simulation (an extended time period of 50 minutes) of toasting of the World Cooperage traditional barrel. The surface temperatures in Figure II correspond to the temperature shown for the World Cooperage barrel in Figure I.

After discrete times and temperatures, particular chemicals are released from the oak structure to become extractable by wine; others like tannins are thermally degraded.

The influence of temperature during toasting may be conveniently broken down into three phases — low-, moderate-, and high-temperature toasting. In the low temperature (under 300°F) phase, there are few flavor extractives formed, but oak tannins are broken down. In the moderate (above 300°F) phase, the production of extractives due to hemicellulose caramelization occurs, and in the high-temperature (above 380°F) phase, lignin is disrupted and creates vanillin, smoke, and related compounds.

Formation and/or destruction of the main flavor chemicals are shown in Figure III. These times and temperatures are closely correlated and refer strictly to the relatively short time it takes to bend and toast a barrel. In barrel toasting, heat is seldom applied for more than one hour. When stave wood is heated for longer periods, the time-temperature relationship can be very different.

As introduced above, tannin breakdown begins at relatively mild temperatures (under 250°F). Complex ellagitannins, such as roburins A-E and grandinin, break down and the isomers vescalagin and castalagin may increase, usually temporarily, as these break down further into gallic and ellagic acids.

Oak hemicellulose (often referred to as "wood sugar") caramelizes to release a very large number of sugar-breakdown compounds. Most have limited flavor impact, but cumulatively they create the so-called "toasty" flavors.[8] Initially, the flavors are light and like creamy fudge.

As the toasting temperature rises, the flavors become "heavier" and less creamy and finally, as the destruction of the hemicellulose (and to a much lesser extent, cellulose itself) becomes extensive, flavors more reminiscent of burnt sugar or burnt toast occur. These three sections are relatively discrete and the compounds 5-hydroxymethyl fur-

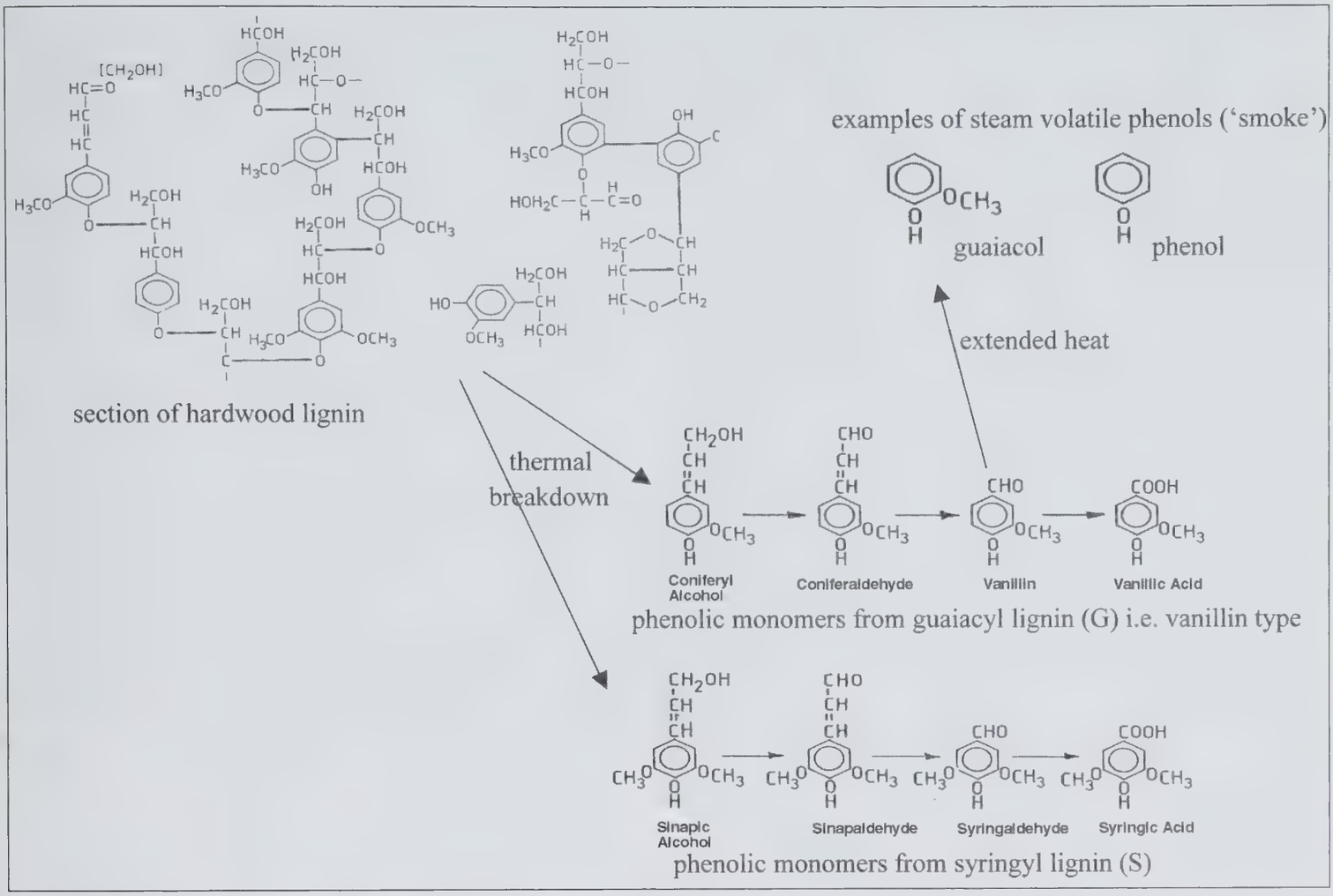


Figure IV: Pathway for formation of phenolic aldehydes and steam volatile phenols from oak lignin. (Lignin macromolecule based on Adler 1977[9].)

A Natural Solution
Wines Central
FULL SERVICE WAREHOUSE

• Redundant cooling systems designed to reliably deliver maximum cooling year round ensure total client confidence
• Temperature controlled storage.
• State-of-the-art security, fire and temperature monitoring systems.
• Insured and certified bonded wine storage.
• Strategic inventory management.
Confidence is a destination for wine...
710 L STREET
MARE ISLAND, CA 94592
TOLL FREE: 1-866-WINE-HUB
www.winescentral.com
Wines Central
WINE STORAGE
CONSOLIDATION
LOGISTICS
We Care...

FOR THE COMMERCIAL AND HOME WINEMAKER
ANALYZE THIS!
Individual Analyses
Alcohol · Acids · Sulfur · Sugars · etc.
Panels:
Standard · Cellar Maintainence
Harvest Panel · Juice Panel
Winemaking Supplies
Cellar Chemicals · Yeast · ML · Acids · TSP
Labware · Hydrometers · Beakers
and much more!
LWL
LODI WINERY LABORATORY
SALES AND SERVICES
400 E. Kettleman Lane • Suite 19 • Lodi, CA 95240
tel: (209) 339-1990 • fax: (209) 339-1975
website: www.lodiwinerylaboratory.com
email: lwl@lodiwinerylaboratory.com

You've Tasted The Wines, Now Buy The Vines!

Kendall-Jackson Nursery is a California certified grapevine nursery. Established in 1993, Kendall-Jackson Nursery has grown into one of the largest grapevine producers in the United States. Kendall-Jackson Nursery propagates young grapevines on superior rootstock grown on the only 100% fully trellised rootstock increase block in California. This provides a grapevine with the **best "engine" in the industry.**

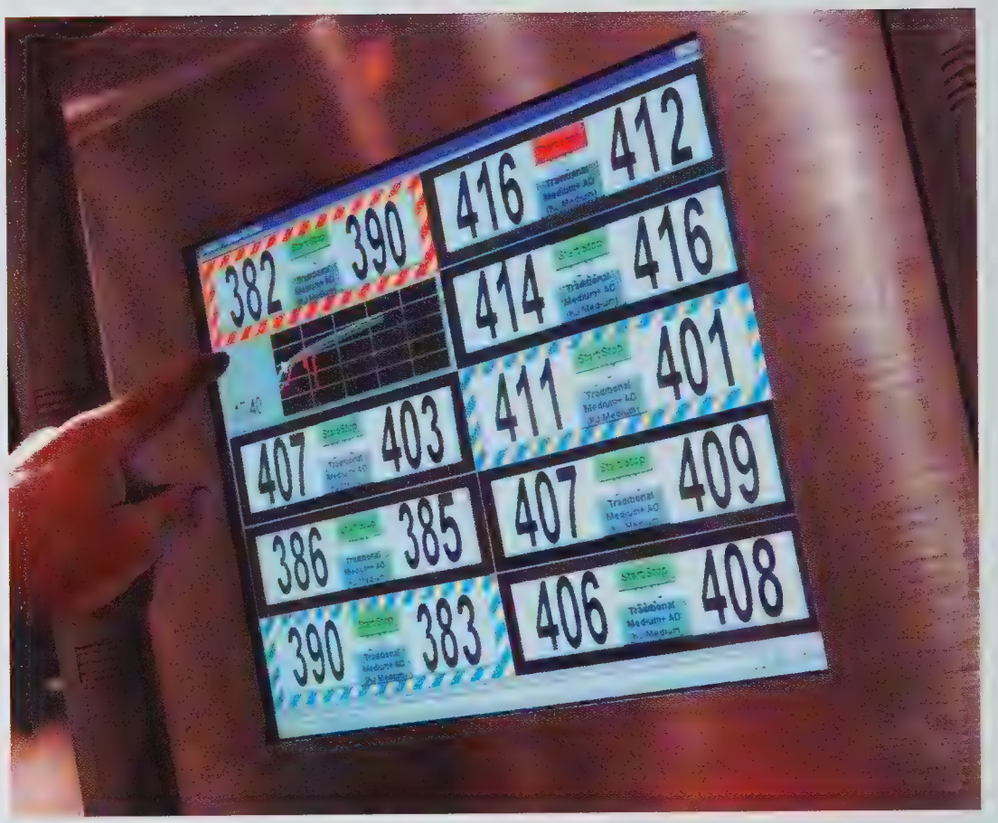
- **Dormant Benchgrafts**
- **Dormant Rootings**
- **Greengrowing Benchgrafts**
- **Greengrowing "Quick Starts"**

We offer Kendall-Jackson Growers and New Customer Discounts.
CALL ERNIE BOWMAN AT 707-836-2021

KJ VINEYARDS AND WINERY
KENDALL-JACKSON NURSERY

Customer Operations
707-836-2021 Fax 707-836-2266
1190 Kittyhawk Boulevard
Santa Rosa, CA 95403

Nursery Operations
559-661-8702 Fax 599-661-2009
18394 Avenue 18
Madera, CA 93637



For each individual toasting pot, the cooper can access a graph that compares the actual temperature to the target temperature.

fural (hmf), 5-methyl furfural, and furfuraldehyde (furfural) may be used as chemical markers. In product-profiling, these three stages of caramelization are monitored for quality control purposes.

Vanillin is arguably the most important flavor created from oak. It comes from lignin breakdown and is always accompanied by syringaldehyde, representing the two building blocks of hardwood lignin. The ratio of the two (vanillin : syringaldehyde) in toasted oak and wine changes with the extent of heating and is indicative of the amount of energy used in the process.[7]

Vanillin can be released from oak lignin at quite low temperatures, but in barrel toasting, higher temperatures (425°F) are needed than those already discussed. If the temperatures applied are too high (500°F), however, then the lignin macro-molecule breaks down beyond vanillin and syringaldehyde and forms simple steam volatile phenols, which have smoky aromas. The compound guaiacol, for example, imparts a sweet smoke characteristic to wine, while 4-methyl guaiacol is spicy and clove-like.

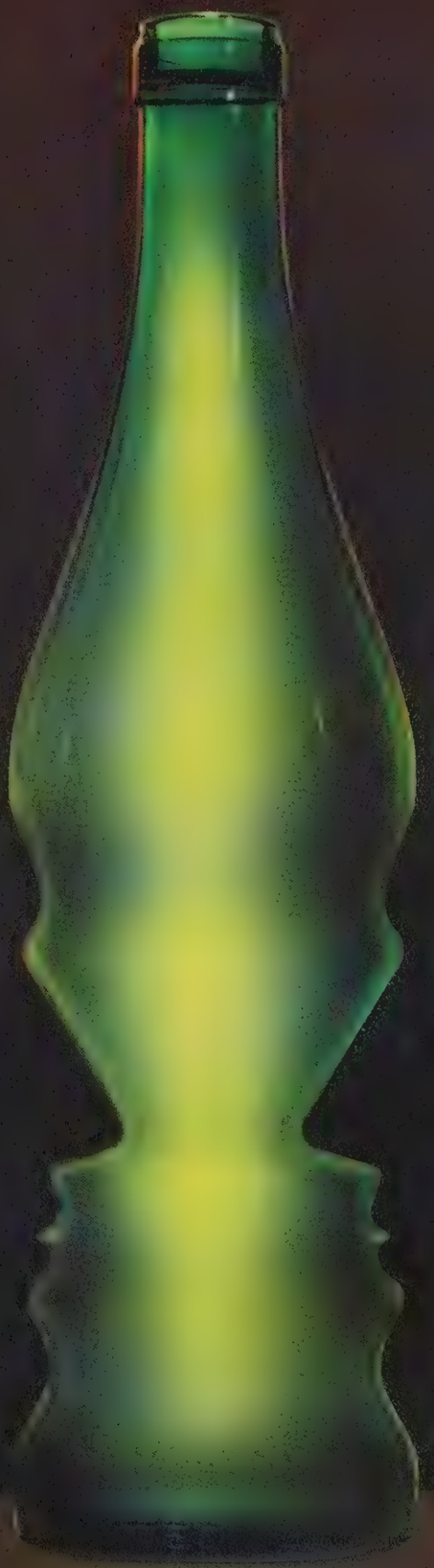
By measuring the compounds listed above together with other related compounds, 19 in all, a picture of the flavor chemistry of the toasting process can be created.

The flavor impact of these compounds depends upon the wine, much more of the compounds being needed to influence a full-bodied red compared to a dry white wine. However, vanillin has, by far, the greatest impact (lowest threshold). The relative impacts of the various phenolic aldehydes and steam volatile phenols are shown in Table I with vanillin set to an arbitrary value of 1. (The substrate was 20% ethanol:water[10,11])

How does custom profiling differ from conventional barrel-making?

The casual observer visiting World Cooperage with a basic knowledge of cooperages might notice no difference at all from barrel toasting elsewhere. The coopers would be busy toasting open-ended barrels over oak wood fire pots. What is different are touch-screen monitors above the toasting area, tempera-

Come face to face
with the world's most
distinctive bottle makers.



A world leader in glass packaging, Saint-Gobain companies like ***Emballage*** and ***Vetri*** are responsible for many of Europe's most exclusive and coveted bottle designs. Today, all those famous names have a familiar face: your Saint-Gobain Containers sales representative, who can now access any product in the Saint-Gobain family and coordinate ordering, billing, customer service and technical service from a single point of contact.

When you're ready to face the possibilities, contact your sales representative, or call 707-863-4082 or visit our website at www.sgcontainers.com.

SAINT-GOBAIN
CONTAINERS

© 2004 Saint-Gobain Corporation

Table I. Relative flavor impact of phenolic aldehydes and steam volatile phenols (note: higher numbers have the greater impact)

Compound	Odor impact
Vanillin	1
Syringaldehyde	0.07
Syringic acid	0.006
Coniferaldhyde	0.02
Vanillic acid	0.04
Phenol	0.0005
Guaiacol	0.7
o-Cresol	0.06
4-methyl guaiacol	0.4

Name: _____

World Cooperage / Kendall Jackson Profile Tasting Sheet

Date:

Wine:

PLEASE RATE FROM 1–7 (1 is lowest impact)

CHARACTERISTICS FOR BARRELS	Wine A	Wine B	Wine C	Wine D	Wine E	Wine F	New Profile
SWEETNESS							
ASTRINGENCY							
BITTERNESS							
TOAST							
SMOKE							
TANNIN							
SPICE							
GREEN OAK – RAW							
OVERALL OAK IMPRESSION							
VANILLA							
FRUIT							
COMPLEXITY							
TOTAL INTENSITY OF FLAVOR							
TOTAL INTENSITY OF AROMA							

Figure V: Tasting sheet used for the K-J new barrel profiles.

ture sensors beside the pots, and fine control of the fire pots to avoid hot spots.

In profiling, the cooper toasts the barrel by following a time-temperature curve that will allow exactly the same results each time and which will ensure that the flavor chemistry is exactly as intended. On the computer, each temperature curve shows the ideal curve, with its upper and lower limits, and the actual curve in real time — the curve that is actually being produced by the cooper. (See photo, page 20.)

Developing Kendall-Jackson's custom-profile barrels for Chardonnay

The first step in producing a custom barrel for a winemaker is to listen to what is desired. Kendall-Jackson was seeking three different types of barrels. The following features were targeted for the Monterey Chardonnay:

Profile 1. A low tannin, toasty barrel with moderate vanillin, light-style spiciness, and little smoke character.

Profile 2. A low tannin, toasty barrel with high vanillin, slight to moderate spiciness, and some smoke character.

Profile 3. A low tannin, rich, dark high-toast barrel with low- to moderate-vanillin, light spiciness, and moderate smoke intensity.

The next step was to ask for wine samples that demonstrated these characteristics. Barrel makers then conducted a tasting panel with the winemakers using agreed-upon terminology and analyzed the wines to determine how much of the "key" flavor compounds should be present.

By correlating these steps, and with knowledge of how the "key" compounds can be created during toasting in the correct amounts, a trial profile curve was created and used to produce a set of test barrels (typically 10 of each type). After that, wine was aged in the barrels, and the results were determined by tasting and backup analysis.

AXIOM ENGINEERS℠
CONSULTING MECHANICAL ENGINEERS

Large enough to serve ...
... Small enough to care

Napa
Tel: (707) 251-1468
Fax: (707) 251-1432

Monterey
Tel: (831) 649-8000
Fax: (831) 649-8038

Santa Cruz
Tel: (831) 464-4320
Fax: (831) 464-4323

Modesto
Tel: (209) 599-2000
Fax: (209) 599-5370

San Jose
Tel: (408) 341-1645
Fax: (408) 341-1649

From "Concept to Cases"
Experienced in all phases of winery process engineering

- Barrel storage
- Crush areas
- Fermentation & tank farms
- Facility master plans
- Waste treatment
- Case goods & bottling
- Site utilities
- Cogeneration
- Process utilities
- Controls
- Refrigeration
- Fire protection
- HVAC
- Process equipment

30 YEARS STRONG
KNOWLEDGE ▲ EXPERIENCE ▲ VALUE
www.axiomengineers.com

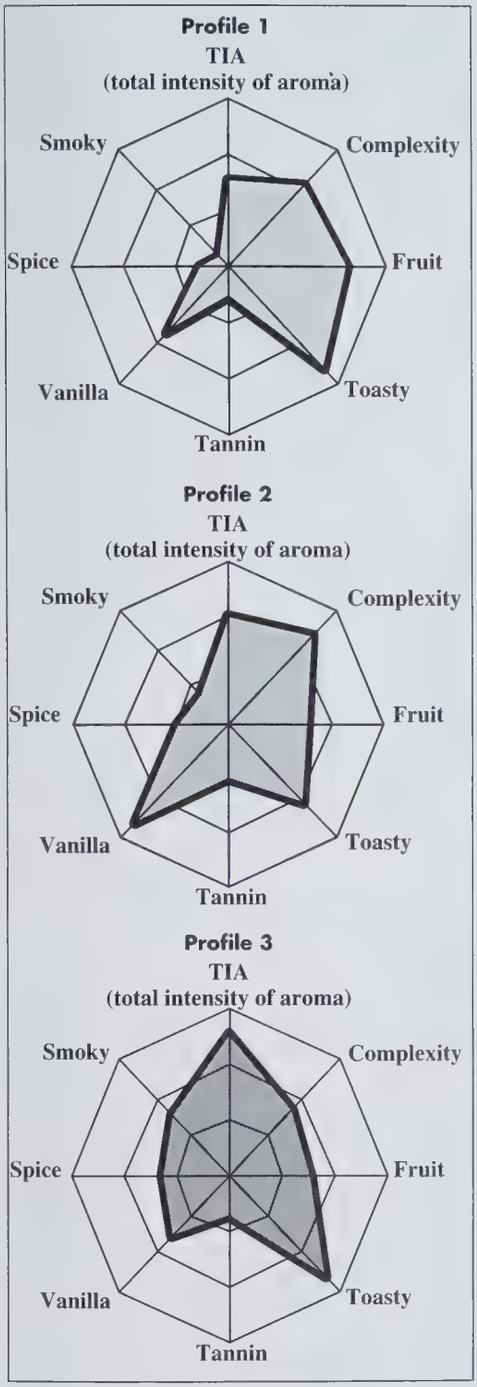
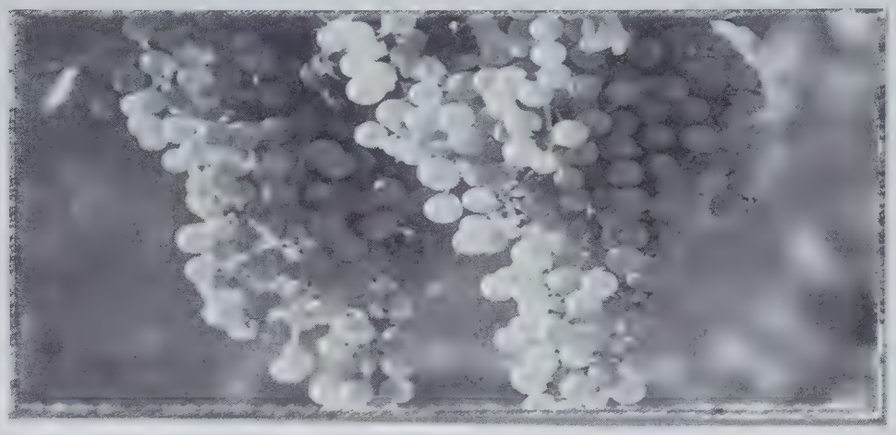


Figure VI: Spider diagrams summarizing the taste panel's features of the three custom profiles based on Monterey Chardonnay.

While Kendall-Jackson's Monterey Chardonnay was used as the primary target, parallel trials with other wines were also undertaken. One limitation of using barrel-fermented Chardonnay is the utilization of vanillin by the yeast during barrel fermentation and resulting low levels of this, the most important of all oak extractives. Accordingly, vanillin

Continued on page 26



FINDING REAL-WORLD SOLUTIONS FOR CALIFORNIA AND PACIFIC NORTHWEST WINERIES & VINEYARDS

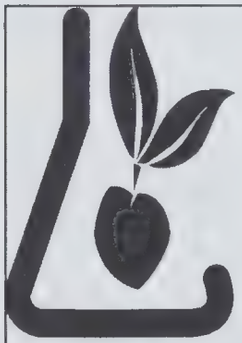
Business Advice
Contracts
Environment
Natural Resources
Real Estate
Land Use
Industry Permitting
Licensing
Trademarks

With more than 70 clients in the wine business, Stoel Rives Winery & Vineyard Lawyers are trusted advisors on all aspects of the legal and business issues facing wineries and vineyards. Our deep industry involvement keeps us abreast of the trends and changes critical to our clients' success. www.stoel.com

In California –
Christopher J. Carr
415-617-8925
cjcarr@stoel.com

In the Pacific Northwest –
Christopher R. Hermann
503-294-9236/206-624-7673
crhermann@stoel.com

STOEL RIVES LLP
ATTORNEYS AT LAW



Pierce's Disease and Grapevine Virus Testing Services by
STA Laboratories, inc.

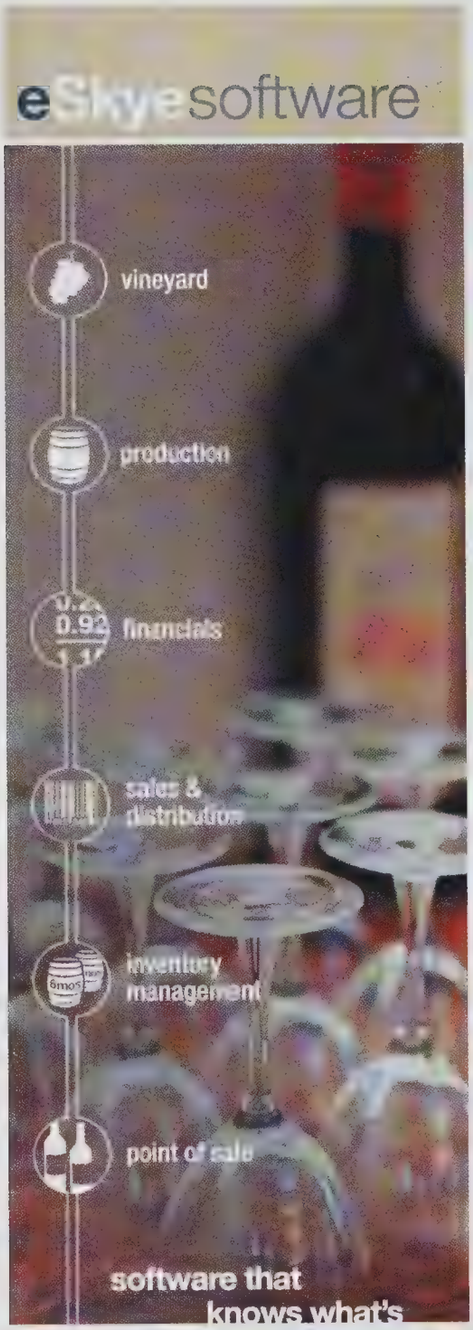
Accurate, Reliable and Fast testing of Rootstock, benchgrafts and vines.

▪ **Real-Time PCR** ▪**ELISA** ▪**Special Projects**

▪ **Molecular Diagnostics** ▪**Volume Discounts**

STA is the exclusive United States Distributor of the high quality

BIOREBA Virus Diagnostic Products
1-888-782-5220
E-mail: stacalinfo@stalabs.com
www.stalabs.com
5653 Monterey Frontage Road Gilroy, CA 99520


eSkye software
vineyard
production
financials
sales & distribution
inventory management
point of sale
software that knows what's
IN THE GLASS
With over 100 years experience in the winery business, eSkye provides a smart solution for every step of the process, from vineyard to product distribution. eSkye offers the future of wine production and distribution information management. To see how our offerings are designed to meet your needs, please visit us at www.eskyesoftware.com
Glen Ellen California 707-996-9754

Behind Vintner's Reserve wines' new package

BY Tina Vierra

At the same time Kendall-Jackson Wine Estates (K-J) is striving to develop the perfect barrel toast palate for its Vintner's Reserve (VR) Chardonnay, K-J has taken a new marketing position with its VR line of wines for 2004. Aiming to set the brand apart from the sea of fighting varietals and Two-Buck-Chuck wannabes in the world wine market these days, K-J has improved the wine quality and changed the packaging to match. The goal is to entice long-time customers and new fans with the concept of "affordable luxury."

New proprietary antique-glass bottles from Saint-Gobain Containers (Muncie, IN) are topped with stylish polylaminate capsules from Maverick (Ukiah, CA). Tim Pletcher, Maverick plant manager, worked with K-J to produce an upscale tin capsule look at a polylaminate price.

"We found the best thickness and density of material for perfect 'spin down,'" Pletcher explains. "That meant increasing the outside diameter of the bottle-neck. The capsule is now very well-formed to the bottle, without the old polylaminate 'seam' or any hiccup at the bottom of the capsule." The capsules work well with both older and newer K-J bottling lines.

White wines are sealed with Nomacorc synthetic closures (distributed by Newpak in Benicia, CA), which the K-J winemakers believe are a good match for their upscale yet drinkable-now brand. Gone are the formerly fashionable flange-top bottles with wax seals.

"We used to get phone calls from restaurant bar managers who couldn't open those flange bottles with bar-top openers," says George Rose, the company's vice president of public relations. "Since Vintner's Reserve wines are some of the leading restaurant wines in the U.S., the new packaging will make a lot of people happy."

Retailing at $10.99 for a 750 ml bottle ($8.99 in California), an increase of nearly 15% over the previous vintage, the wines are designed to look and taste like a good value for the quality they deliver. "We've been making great wine since 1982," says founder Jess Jackson. "We felt it was time consumers understand and appreciate all that goes into our wine, and we believe the new packaging conveys this message."

The new label designed by HKA Design (San Francisco, CA) aims to match the simplicity and elegance of the bottles and capsules, while retaining the recognizable K-J logo. Jackson's signature on the front label and a quality statement further emphasize the message of value for money.

The new wet-glue Vintners Reserve label, in keeping with K-J's wish for a classic look and feel at a value price, is printed on uncoated paper. HKA designed a square label with no die-cut but subtle embossing in the background to give the label a three-dimensional feel. The label wraps farther around the bottle and is taller than the old label. The familiar K-J leaf logo is printed without metallic colors to blend into the softer look.

K-J has launched a national consumer advertising campaign for the first time ever. In October, a series of four print ads appeared in publications that reach a target audience of educated, savvy consumers, such as *Vanity Fair, Architectural Digest, Travel+Leisure,* and *The New Yorker.* The ads, titled "A Taste of the Truth," inform consumers about Jackson's winemaking philosophies in his own inimitable voice. ■

Delaying the purchase of new equipment?

Let ColloPack work with you to maintain your equipment in peak running condition. ColloPack offers a selection of service solutions designed to help you get the most from your critical wine bottling and processing equipment. From our periodic maintenance checks to complete machine reconditioning, ColloPack is here to help you eliminate breakdowns and maximize the life of the equipment you already own. Call ColloPack Solutions for a comprehensive review of our maintenance plans.

193 Camino Dorado Avenue, Napa, CA 94558 • 707.258.3940

COLLOPACK
SOLUTIONS LLC

Table II. Chemical analysis of Monterey Chardonnay from the custom profiles (in ppm)

	Profile 1	Profile 2	Profile 3	Control
Tannin breakdown				
Gallic acid	5.99	5.52	5.74	5.65
Ellagic acid	8.76	7.42	7.86	5.69
Hemicellulose caramelization				
5-Hydroxymethyl furfural	2.01	1.43	1.64	0.36
5-methyl furfural	0.36	0.24	0.3	0.08
Furfural	1.13	0.98	1.12	0.12
Wine phenolics				
Protocatechuic acid	3.65	3.76	4.09	4.07
Catechin	0.45	0.34	0.44	0.27
Chlorogenic acid	0.09	0.06	0.07	0.06
Caffeic acid	1.42	1.53	1.46	1.49
Epicatechin	0.3	0.19	0.29	0.32
Myricetin	0.36	0.29	0.36	0.32
Quercetin	0.32	3.27	0.54	0.61
Lignin degradation				
Vanillic acid	0.15	0.11	0.02	0.06
Syringic acid	1.17	0.88	1.02	1.04
Vanillin	0.38	0.33	0.36	0.22
Syringaldehyde	0.9	0.93	0.83	1.06
Coniferaldehyde	1.79	1.6	1.77	1.93
Sinapaldehyde	0.23	0.29	0.27	0.19
'smoke'				
Phenol	0.06	0.08	0.09	0.04
Guaiacol	0.14	1.8	0.1	0.19
m/p Cresol	0.02	0.11	0.03	0.01
o Cresol	0.01	0.01	0.02	0
4-Methyl guaiacol	1.01	0.59	1.09	0.34
4-Ethyl guaiacol	0.12	0.19	0.12	0.06
Oak lactones				
trans lactone	0.024	0.045	0.011	0.044
cis lactone	0.038	0.071	0.042	0.042

levels are always low (although usually well above the taste threshold). To determine the vanillin levels, the barrels were also used for ageing Pinot Noir.

In development of a custom profile, the descriptive tasting form does not always need to be the same, indeed it should reflect exactly what is wanted and what is not. The tasting sheet that was used in this case is shown in Figure V. The tasting procedure used a seven-point intensity ranking scale. The seven-point scale has a psychological basis; since it is essentially low-medium-high intensities with subdivisions between each interval. Its use requires a trained panel particularly in the use of descriptive terms. However since the scale is essentially the process of ranking that develops during childhood, its reproducibility tends to be good and can be adjusted by discussion after each tasting.

Results of the sensory evaluations are presented here as spider diagrams of the most significantly different attributes. The spider diagrams represent the desired attributes in pictorial form (see Figure VI).

To create barrels that met the desired criteria the following time-temperature profiles were created, as shown in Figure VII. The profiles were based on the chemistry of change that research has shown to take place during (short time period) toasting.

Summing up Kendall-Jackson's custom profiles

Winemakers' sensory evaluation of the Kendall-Jackson wines from each

BULLDOG PUP
THE ORIGINAL GAS PRESSURE RACKING WAND
Extremely Clean Rackings
Superior – Sanitary
Durable Design
OPTIONAL ATTACHMENTS
Foot Valve
Flex Leg
Top Dog
DON'T SETTLE FOR A MUTT!
Bulldog Manufacturing
P.O. Box 356 San Luis Obispo, CA 93406
Ph 805.541.3083 Fax 805.544.6181
www.bulldogmfg.com
email: pups@bulldogmfg.com

GALO MACLEAN NURSERY INC.
Over 25 years of nursery experience
CUTTINGS, DORMANT ROOTINGS
DORMANT BENCHGRAFTS UNDER CUSTOM CONTRACT
CERTIFIED STOCK
110R, 5C, 5BB, 101-14MG, 3309C, 140R, 1103P, & S04
Phone (707) 255-8874 • Fax (707) 255-4579
Galo Maclean • 2160 Cuttings Wharf Rd. • Napa, CA 94559

Crafting consistency into Vintner's Reserve Chardonnay

BY Tina Vierra

At two million cases per year, production of Vintner's Reserve (VR) Chardonnay is a challenging effort for Kendall-Jackson Wine Estates (K-J). Repeatedly the #1 restaurant wine brand (*Wine & Spirits Magazine* restaurant poll) and the #1 retailing Chardonnay on the market (IR/Infoscan sales data figures, 2003), the VR Chardonnay clearly has a flavor profile consumers love.

The challenge is to satisfy consumers by consistently producing that flavor profile from year to year — no mean feat given the inconsistency inherent in growing grapes and making wine. To achieve their flavor profile goals, Kendall-Jackson's winemaking team has spent years working for better control of the elements in the winemaking process that are controllable, and oak barrels are one part of a very large picture.

Winemaker Randy Ullom and his team have a firm grasp on what fruit characteristics they can expect from various vineyard locations. Grapes for VR Chardonnay are 65% estate-grown. Vineyard locations, clonal selection, and fruit profiles that will contribute to an ideal VR blend each year are mapped and tasted, and then matched to oak, yeasts, fermentation methods, and more.

K-J has identified the oak sources best-suited to the VR Chardonnay blend, and through its stave mill partnership with World Cooperage (WC), can season and treat the oak exactly as needed. Barrel toast profiling was the perfect next step. Over a five-year period, K-J sent oak from its stave mill to a variety of cooperages, obtaining and testing a number of barrel styles and toasts. At that point, the winemakers had identified what Ullom calls the "baseline" toast profiles for VR Chardonnay.

By 2001, World Cooperage was able to produce four baseline toast profiles consistently. The four toasts — WC Traditional, TW Boswell Legacy, Côte d'Or, and Médoc — represent over 50% of the new oak for the blend. Since 2001, the profiling technology allows for an ever-greater number of new toasts, each exclusive to K-J, to be used in small lots in the blend. Exact toast profiles can be matched to fruit profiles from a particular vineyard block, for example.

"Barrel variations are minimized," says Ullom. "Consistency is the point of all this effort."

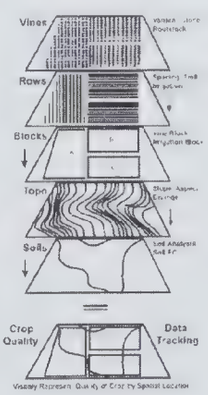
Winemakers anticipate they could be using up to 25 custom barrel toast profiles, plus the four baseline profiles, in the VR wines before they're done developing the barrel program. For the Chardonnay, 15% to 20% of the oak is new, representing 50% of the oak flavor in the final blend.

The complexity of fruit, barrel toasts, and other components that make up the Vintner's Reserve Chardonnay each year is astounding. Working toward greater flavor complexity, and yet still trying to achieve the consistency their customers prefer, Kendall-Jackson is slowly building a variety of perfectly matched fruit, oak, and toast for better blending every vintage. ■

How can you Manage it if you haven't Measured it?

Use geo-referenced land and business data layered to create a central location for retrievable information.
Land-specific Geographic Information Systems (GIS) allow you to...

- Collect and document essential information
- Manage daily operations more efficiently
- Plan and make more informed decisions
- Increase **Quality and Quantity**
- Improve business reputation
- Masterplan your new or prospective property



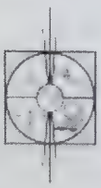
With 30+ years of experience and the latest technology, Ray Carlson and Associates provides GIS/LIS, Surveys, GPS, Mapping, Historical Research and Project Management Services for effective land management and marketing.

Call today for:

Surveys
Boundary
Topographic
Aerial Control

Products
Tentative Maps
Parcel Maps
Subdivision Maps

GIS/LIS
Digital Aerial Photos
Data Capture
Data Management



Ray Carlson & Associates
LAND SURVEYING & RELATED SERVICES

411 Russell Ave. Santa Rosa, CA 95103
http:\\www.rcmaps.com E-mail: rca@rcmaps.com
Phone: (707) 528-7649 Fax: (707) 571-5541

The Ultimate Vineyard Wire

The Best Wire Just Got Better!

- **Corrosion protection of at least 3x that of class 3 galvanized wire**
- **Offers all the advantages of zinc coatings in terms of workability, ductibility, and durability**

Spec Trellising
When Quality Counts!

www.spectrellising.com
(800) 237-4594

THIS IS NOT PVC COATED WIRE
THIS DRAWING IS NOT TO SCALE
ZALCOTE™ AND PERMASEAL™ ARE REGISTERED TRADEMARKS OF ONESTEEL WIRE PTY LIMITED

of the three custom profiles concluded: Profile 1 and 2 met the desired specifications, and in Profile 3, tannin levels, vanillin, and spiciness met the specification, but the level of toastiness and style of toastiness did not.

The full chemical analysis of wines from the three profiles is shown in Table II, and the key features are summarized in Figure VII.

Inspection of the chemical analysis explains the success of Profiles 1 and 2, why Profile 3 was unsuccessful, and what corrective action was required. The levels of gallic and ellagic acid in the wines are consistent with a high level of tannin breakdown from all of the profiles — as desired. In Profiles 1 and 2, the toastiness, as measured by the hemicellulose caramelization, vanillin, smokiness, and spice, are all as desired.

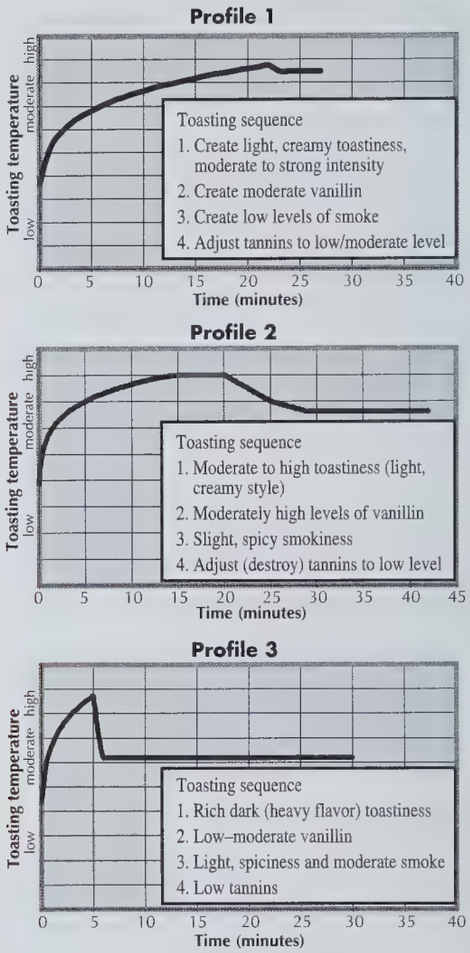


Figure VII: Profiles designed to meet the required flavor profiles.

Profile 3 fell short of expectations with respect to low toastiness, notably the dark style (using furfural as the marker) and low levels of smokiness as measured by phenol, guaiacol, and o-cresol. Small differences can be sensorially significant. With the knowledge of hindsight, it is easy to see why. Inspection of the time-temperature curve for Profile 3 (Figure VII) shows that the period of time within the temperature zone, where toastiness and smokiness are created, was too short. Extending the time period, from five to 10 minutes, corrected the shortcomings.

Conclusions

The custom profiling project with World Cooperage and Kendall-Jackson

The proof is in the numbers...

800 million nomacorc closures this year alone.

From high volume to short-run wineries, Nomacorc® has become the preferred synthetic closure world-wide. Year-in and year-out, our roster increases. When compared to other synthetic, technical, or even bark closures, nomacorcs are "Simply a Better Closure." Nomacorc uses patented co-extrusion technology and wine know-how to create a closure that performs with greater consistency, has a realistic natural appearance, imparts no taste or smell to your wine, and offers realistic expectations for its use.

We're not just protecting tradition, we're making it better.
For an in-depth view at alternative closures,
visit us at: www.nomacorc.com

nomacorc®
"Simply a Better Closure."

©2004 Nomacorc LLC, Zebulon, North Carolina, USA

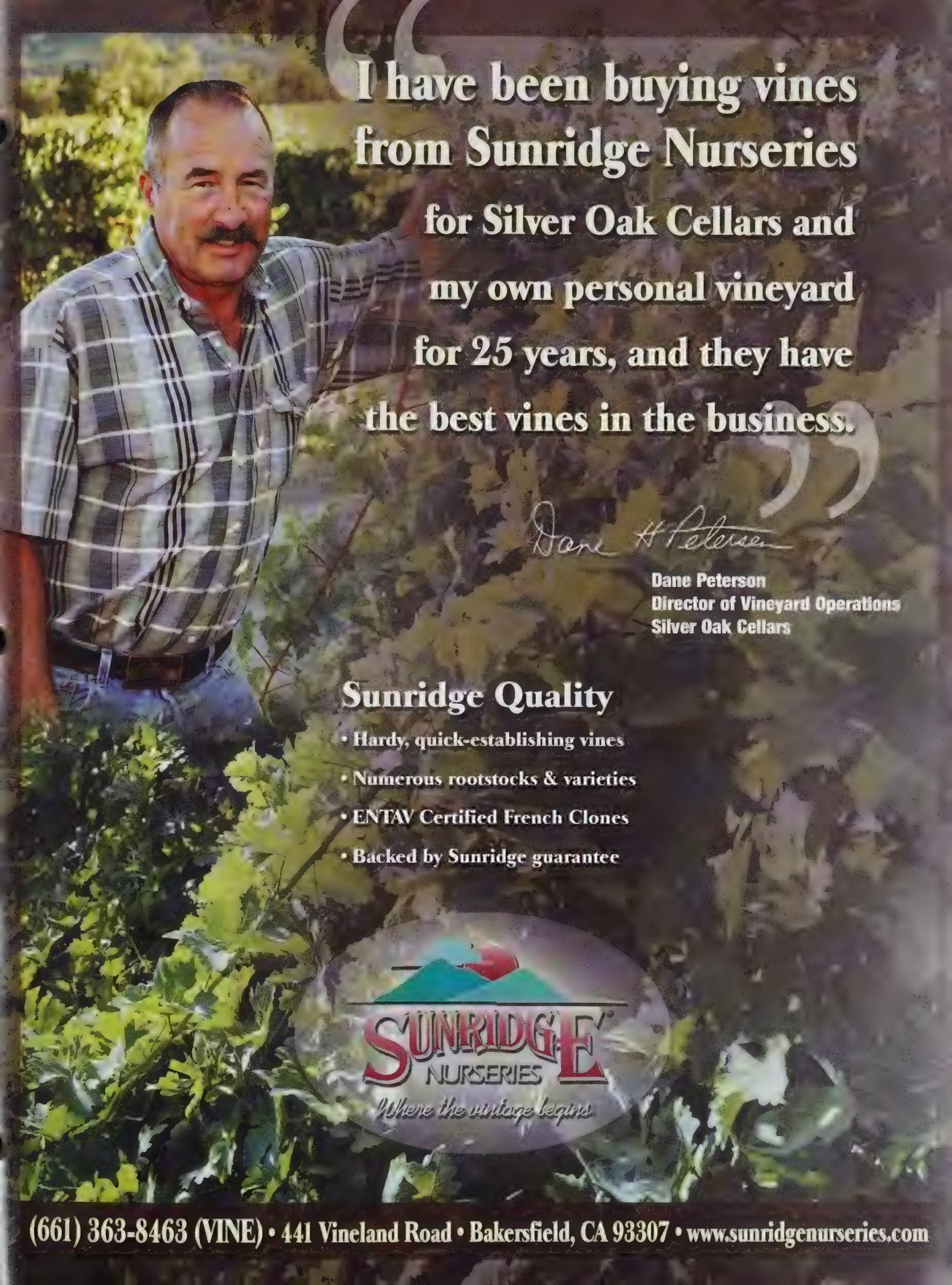

I have been buying vines from Sunridge Nurseries for Silver Oak Cellars and my own personal vineyard for 25 years, and they have the best vines in the business.
Dane H Peterson
Dane Peterson
Director of Vineyard Operations
Silver Oak Cellars
Sunridge Quality
• Hardy, quick-establishing vines
• Numerous rootstocks & varieties
• ENTAV Certified French Clones
• Backed by Sunridge guarantee
SUNRIDGE NURSERIES
Where the vintage begins
(661) 363-8463 (VINE) • 441 Vineland Road • Bakersfield, CA 93307 • www.sunridgenurseries.com

Table III. Flavors and "markers" imparted by oak and their chemistry

Flavor	Chemical components	Source in oak
Light creamy toast, toffee	HMF* (hydroxymethyl furfural)	Hemicellulose
Burnt, bitter, heavy toast	furfural	Hemicellulose and Cellulose**
Vanilla, caramel, cream soda	vanillin	Lignin
Coconut, sun tan lotion	cis Oak lactone (occurring at 10x levels in American oak, much less in French oak)	Minor component with a tannin-like structure (NOT an oak tannin)
Smoke, sweet-smoke-aromatic	Guaiacol	Lignin
Smoky medicinal	Phenol, m/p cresol and family	Lignin
Spice	Methyl guaiacol	Lignin

* marker for a combination of flavors that combine to create this flavor

** The combination may also be called Holocellulose or Polyoses

NOTE: Ellagic acid = low astringency means that ellagic acid is much weaker in terms of its astringency (and bitterness) compared with more complex tannins such as vescalagin.

demonstrates that creating time-temperature profiles for toasting wine barrels has opened up new opportunities for the creation of styles to meet winemakers' needs. Improved product consistency is also obtained. The innovation combines four developments in engineering, computer, and sensory sciences, namely:

- accurate temperature measurement in toasting,
- creation of computer-aided guidance for coopers,
- analytical capabilities to measure chemicals that control flavor development,
- techniques to correlate sensory and analytical data.

Experience of using the innovation will increase in the future, but the examples presented here suggest that this technology is already well-established and effective. Winemakers with a goal to produce high-quality wines for increasingly sophisticated consumers now have an additional tool at their disposal. ■

References

1. Domburg, G.E. In: "Wood, Chemistry, Ultrastructure, Reactions." D. Fengel and G. Wegener (Eds). p329. Walter de Gruyter, Berlin, (1984).

2. Cadahía, E., S.L. Varea, B. MuZoz, M. Fernández de Simón, C. García-Vallejo. "Evolution of Ellagitannins in Spanish, French, and American Oak Woods During Natural Seasoning and Toasting," *J. Agric. Food Chem.*, 49 (8), 3677–3684, (2001).

3. Wilkinson, K.L., G.M. Elsey, R.H. Prager, A.P. Pollnitz, M.A. Sefton. "Rates of Formation of cis- and trans-Oak Lactone from 3-Methyl-4-hydroxyoctanoic Acid," *J. Agric. Food Chem.*, 52 (13), 4213–4218, (2004).

4. Waterhouse, A.L., J.P Towey. "Oak lactone ratio distinguishes between wines fermented in American and French oak barrels," *J Agric. Fd. Chem*, 42,1971–1974, (1994).

5. Hale, M.D., K. McCafferty, E. Larmie, J. Newton, J.S. Swan. "The Influence of Oak Seasoning and Toasting Parameters on the Composition and Quality of Wine," *Am. J. Enol. & Vitic.* 50, 495–502, (1999).

6. Swan, J.S., and J. Newton. In: "Proceedings of the Third International Barrel Symposium." A. Boswell (Ed), pp 38–57, Independent Stave Co., St. Louis, (1997).

7. Sarni, F., M. Moutounet, J-L. Puech, P. Rabier. "Effect of Heat Treatment of Oak Wood Extractables," *Holzforschung*, 44, 461–466, (1990).

8. Cutzach, I., P. Chatonett, R. Henry, D. Dubourdieu. *"Identifying New Volatile Compounds in Toasted Oak." J Agric. Fd. Chem.* 47, 1663–1667, (1999).

9. Adler E. In: *Wood Sci. Technology*, 11, 169–218, (1977).

10. Swan, J.S., and S.M. Burtles. In: "Olfaction and Taste," H. Van der Starre, (Ed.). VII, p.451, IRL Press, London, (1980).

11. Swan, J.S., D. Howie, S.M. Burtles, A.A. Willaims, M.J. Lewis, "Sensory and Instrumental Studies of Scotch Whisky Flavour." In: *The Quality of Foods and Beverages*, G. Charalamous and G.E. Inglett (Eds), Vol 1. Chemistry and Technology, p 201–224. Academic Press, New York, (1981).

Photos by Clay McLachlan/ photos courtesy World Cooperage

From planting your first vine to crushing the first fruits of your crop we do whatever it takes!

CONSULTING CIVIL ENGINEERS
RIECHERS SPENCE ASSOCIATES

Complete Consulting and Civil Engineering Services for Winery and Vineyard Development
Visit www.rsacivil.com to view projects

NAPA OFFICE
1541 Third Street
Napa, CA 94559
V. 707.252.3301
F. 707.252.4966
rsacivil@rsacivil.com

Call us to discuss your next project....

SANTA ROSA OFFICE
818 Mendocino Ave.
Santa Rosa, CA 95401
V. 707.573.1872
F. 707.573.1953
santarosa@rsacivil.com

JON AND EILEEN FREDRIKSON

Industry champions win Integrity Award

BY Tina Vierra

"For the past decade and more, at every event with impact on the future of the wine industry, I find the Fredriksons presenting information," says Patrick Gleeson of Meyer Family Enterprises (and former executive director of the American Vineyard Foundation [AVF]). Gleeson was a member of the selection panel that chose Jon and Eileen Fredrikson to receive the 2004 Wine Industry Integrity Award from the Lodi Winegrape Commission. Created in 1998, the award honors individuals who have conducted their careers with integrity while making significant contributions to the wine industry.

Gleeson has a point — Jon and Eileen Fredrikson are nearly ubiquitous. The winners of the 2004 Integrity Award are two of our industry's most visible advocates. From *Advertising Age* to *Business Week, Forbes, Fortune, Los Angeles Times, Newsweek, New York Times, San Francisco Chronicle, Time Magazine, USA Today, U.S. News and World Report*, and the *Wall Street Journal*, where wine industry statistics and analysis are mentioned, so are the Fredriksons.

Jon explains that their business, Gomberg-Fredrikson & Associates (GFA), is really three businesses. "Things have changed in the last several years for the U.S. wine industry in terms of being the industry in the spotlight, with more publicity. GFA is viewed as an information resource by the general public, but we really do much more than that."

GFA, the oldest research and consulting firm in the U.S. wine industry, was founded in 1948 by Louis R. Gomberg. The Fredriksons acquired the firm in 1983 and consulted with Gomberg for their first 10 years as new owners. "To work alongside one of the key players responsible for rebuilding the wine industry after Prohibition, and share his vision and knowledge, is something Eileen and I will always cherish."

Jon and Eileen are consultants in strategic planning and market analysis, work on winery and vineyard acquisitions and divestiture deals (Jon calls this their "real estate" business), and offer the *Gomberg-Fredrikson Report* and the *WineData Wine Pricing Report*. Revenues are roughly equal in all three areas of their business, and in their opinion, it is the first two aspects of their business that gave them the background and in-depth industry knowledge to compile and offer the information they provide.

The Fredriksons have had significant influence in the industry. In one of their first GFA projects, a 1983 benchmark study, Jon and Eileen consulted for three large insurance companies that owned a number of California Central Valley vineyards and wanted predictions on the future of jug wines.

"It was a huge education for us," Jon recalls. "It was one of the first times we looked at wine in the total world business, supply-and-demand picture. Since then, we have always looked at the wine business in its world context."

Soon after, they conducted a market analysis for Chalone Wine Group, prior to that company offering public stock. In that study for Chalone, GFA segmented California table wines into a GFA Premium Index of categories that have become industry standards. Market-segment terms such as "Economy" (jug wines, under $3 retail), "Popular Premiums" ($3 to $7), "Super Premiums" ($7 to $14), "Ultra-Premiums" ($14 to $25), and "Luxury wines" (above $25 per bottle) have helped industry experts and laymen understand wine sales.

On a local television segment, speaking of the U.S. wine industry in the mid-1980s, Jon borrowed from wine writer Ed Everett's term, "fighting brands" and coined the term "fighting varietals," perhaps one of the most famous phrases ever to emerge in wine lingo.

"Over the years, industry players have evolved more usages for the GFA Premium Index than we even know about," Eileen reports. "We know the index has found its way into contractual arrangements regarding distributor/broker performance, and the bottle-price segmentation has been used for grape contracts."

Later in the 1990s, the Fredriksons accepted consulting assignments in Spain, Italy, Chile, and Egypt. The U.S. Agency for International Development (USAID) sent them to Egypt, where former president Gamel Abdel Nassar had nationalized the Egyptian wine industry in 1950s. Egypt was considering privatizing in the 1980s and asked the Fredriksons to consult.

At that time, Egypt hosted millions of European tourists. "It was the Florida of Europe," recalls Jon of the days before Mid-East terrorism escalated. They took their two daughters and spent weeks living overseas. These assignments covering world wine production and markets outside the U.S. added to the Fredriksons' growing expertise and the feeling they were "citizens of the world."

"We have had some wonderful experiences consulting with the largest to smallest wineries over the years," Jon says. "You learn everything there is to know about a winery — even things you don't want to know."

Jon also sits on the boards of directors or advisors of several wineries. "A board has fiduciary and other oversight over a business. These can take me very little time to serve, or they can take a lot of my time if a company stumbles and needs help and oversight." Jon feels serving on boards makes him part of the family within a winery. He falls back on his three-pronged experience in many cases.

Innerstave products for every oak need

Innerstave's array of oak products is designed to provide for every oak need in each phase of winemaking.

BARREL INNERSTAVE

Barrel Innerstave was the original Innerstave product and works well in barrel intensive wineries. It allows for renewing the oak flavors in depleted barrels from 112 liters to 500 liters. Use it anytime.

TANK INNERSTAVE

Tank Innerstave can be manufactured to fit any tank from 250 gallons to 250,000 gallons. The wine-to-wood ratio of the Tank Innerstave is easily modified so the exact amount of oak desired is extracted into each tankful of wine. The use of stainless steel, jacketed tanks with Innerstave allows for finite temperature control and the use of micro-oxygenation systems to make the tanks act more like wine barrels. Great for white wine fermentation and long-term storage/aging of reds and whites.

OakPLUS INNERSTAVE

OakPLUS chips were the first oak chips specifically toasted for use in wines. They are still the benchmark for any other chip product. OakPLUS can be obtained in three distinct particle sizes to fit all processing requirements. OakPLUS is available in French and American oaks and in multiple toast levels. We see OakPLUS being used in all phases of winemaking from fermentation to aging.

chain-o-oak INNERSTAVE

chain-o-oak is a 'through the bung' system designed by Innerstave to benefit those winemakers who are too far away from our office to easily obtain Barrel Innerstave, or for the winemaker who doesn't require excess oak flavor. Each chain-o-oak imparts 1/3 of the amount of oak of a new Barrel Innerstave. This system is winemaker installed and is made from the same oak as Barrel Innerstave. It is used almost exclusively in barrel-aging programs.

bag of blocks INNERSTAVE

bag of blocks is intended for the winery that wants barrel-like flavor in their stainless steel tanks, but may not have the room or inclination to use barrels. The 20lb mesh bags contain 4 barrels worth of oak surface area from oak pieces we have prepared exclusively for this product. Use it in post fermentation wines to enhance the oak flavors. This is another good micro-oxygenation friendly product. Use one bag per 1000 gallons.

INNERSTAVE
Shaping the tastes of fine wine

Innerstave products will enhance the sweetness and butterscotch, vanilla and coconut aromas and flavors of your wines. Tests show that Innerstave products taste toasty without char characters and have enhanced, but moderate spice flavors.

We are experts in oak flavors and our products are essential to the spice rack of every winery.

24200 Arnold Drive
Sonoma, California 95476
toll-free: 888.996.8781
telephone: 707.996.8781
fax: 707.996.1157
e-mail:
sales@innerstave.com
www.innerstave.com

Let us help you shape the tastes of your wine.

☆BATF☆
LABEL APPROVALS

Low per-label costs
Gov't Liaison Negotiations or Footwork

TRADEMARK SEARCHES

As Low as $135.

Your trade names or designs are searched at the U.S. Patent Office to help establish valuable ownership or avoid costly legal liability. Over 100 years' total staff experience handling every government liaison need for industry.

Phone or write for details.
Government Liaison Services, Inc.
200 N. Glebe Rd. #321
Arlington, Virginia 22203
Phone: (703) 524-8200 Fax: (703) 525-8451
TOLL-FREE 1-800-642-6564
Major Credit Cards Accepted

www.trademarkinfo.com

Most great wines have one thing in common.

Us.

Great winemakers rarely agree on many things, but one thing they do agree on is Gusmer*Cellulo*. They know that the right supplier can make all the difference when it comes to making great wine. Whether it's an eloquent Pinot Noir, a rich Cabernet Sauvignon, or a bold Sauvignon Blanc, a late delivery of bacteria, the wrong filter media, or any number of other production problems can have a negative effect on your wine.

That's why some of the best winemakers in the world rely on Gusmer*Cellulo*. We give you reliable on-time delivery, exceptional customer service, the finest quality products, and the most in-depth product knowledge in the industry.

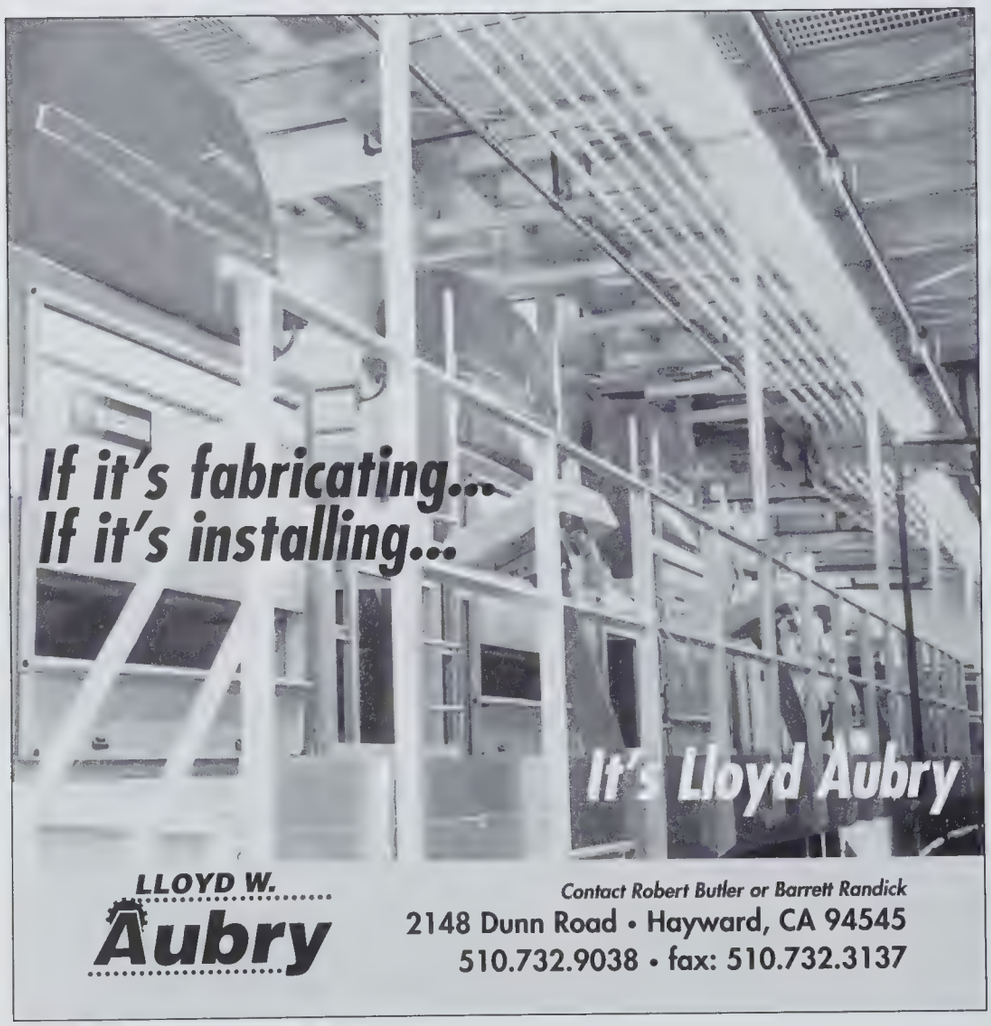
Gusmer*Cellulo* offers you the highest quality products backed by over 75 years of knowledgeable, customer focused sales and service. From Filter Media and Filter Housings to Enzymes, Fining Agents, Yeast and ML Bacteria, Granular Oak and more, when it comes to making wine, Gusmer*Cellulo* is the name great winemakers rely on. So should you. For more information visit our website at **www.gusmercellulo.com** or contact your nearest Gusmer*Cellulo* sales office.

GUSMER*CELLULO*
GUSMER ENTERPRISES, INC.
Service With Knowledge™

East Coast
1165 Globe Avenue, Mountainside, NJ 07092
Phone: (908) 301-1811 Fax: (908) 301-1812

West Coast
81 M Street, Fresno, CA 93721
Phone: (559) 485-2692 Fax: (559) 485-4254

THE WINE LAB™
110 Camino Oruga, Napa, CA 94558
Phone: (707) 224-7903 Fax: (707) 255-2019


If it's fabricating...
If it's installing...
It's Lloyd Aubry
LLOYD W. Aubry
Contact Robert Butler or Barrett Randick
2148 Dunn Road • Hayward, CA 94545
510.732.9038 • fax: 510.732.3137

Eileen Fredrikson serves on numerous wine industry education committees and is director of GFA client services. She is the primary interface with the firm's national and international clients, responsible for special request research and project coordination. For several years, she kept her hand in retailing, working as a wine buyer for a gourmet specialty store in Woodside, CA.

"There is nothing quite like being a farmer's daughter to teach you the reality (sometimes futility) of agricultural business cycles," she says. "The ultimate failure and loss of my dad's Madera vineyard gave us a more personal understanding of grape marketing than did Jon's previous corporate role. We empathize with the growers.

"Much of what I do as director of client services involves 'just in time' numbers," Eileen explains. "On any day, questions can involve a 'need to know' about recent sales growth of a particular varietal or a number of new brand entries in a particular price segment, for example. These can be from grower-clients trying to decide what to plant or pull; clients in the financial sector trying to decide about the viability of a winery's growth plan; individuals seeking data for a new business prospectus … you name it."

The Integrity Award came as a complete surprise to the Fredriksons, and they seem bemused about why they received it.

"I think it's longevity. We've been at this a long time," jokes Jon. "Actually, though she'd groan if I said this, it's more an award for Eileen than me, because she has been the most patient phone volunteer over more than 20 years in this business. She takes all these calls, happy to spend hours with college students, looking out for and helping these people. I don't think I know any other private business firm that students feel so comfortable calling."

He acknowledges, however, that "I try to help out when someone's trying to get re-positioned, needs a job, needs to fill a job, or needs networking help."

Eileen suggests that the award may have resulted from the "10 Gommand-

ments," which are the basis for how they do business. "These are 10 basic guidelines that Lou Gomberg developed regarding how to treat people fairly — even clients and people 'who have done things to you that call for retaliation, anger, and wrath' as he described it."

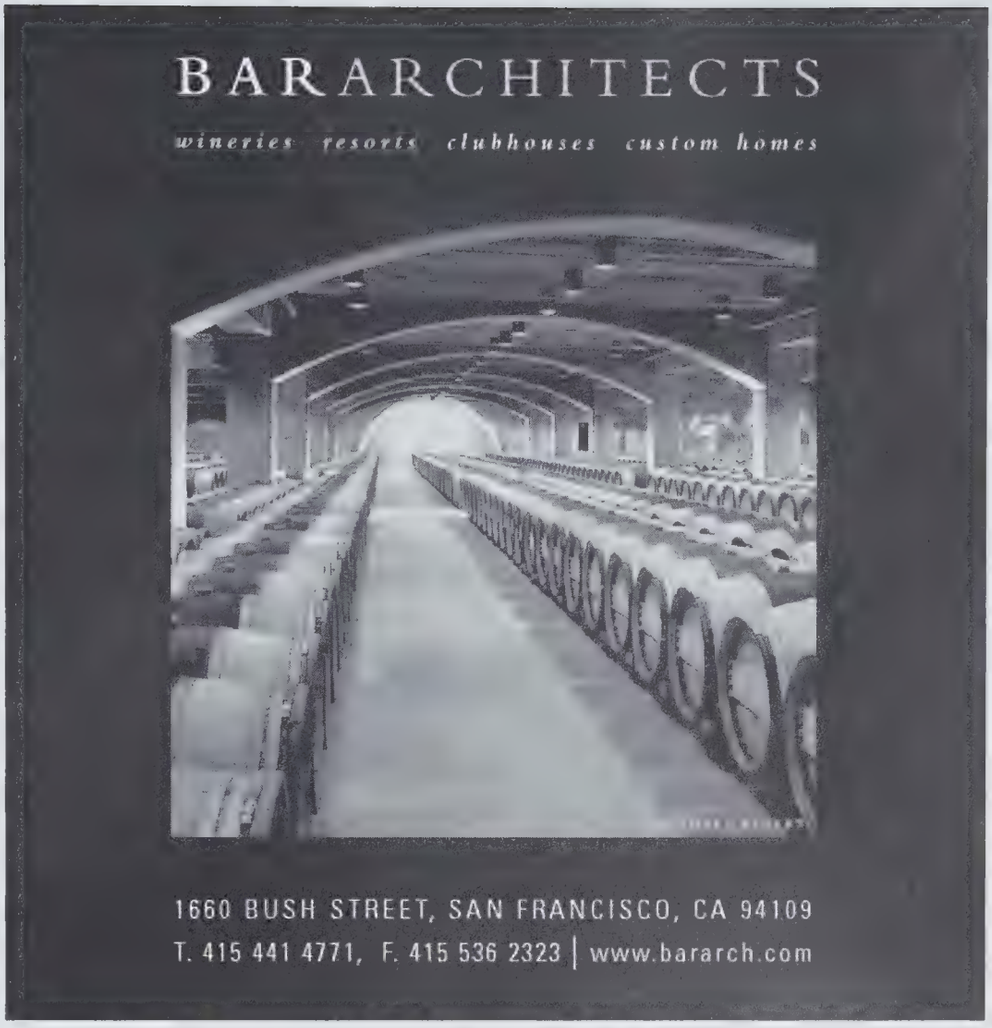
"We were the trustees for the lead capsule settlement a decade or so ago," recalls Jon. "People may still remember that, and it may have some bearing on our reputation as some kind of 'trustees' of the industry."

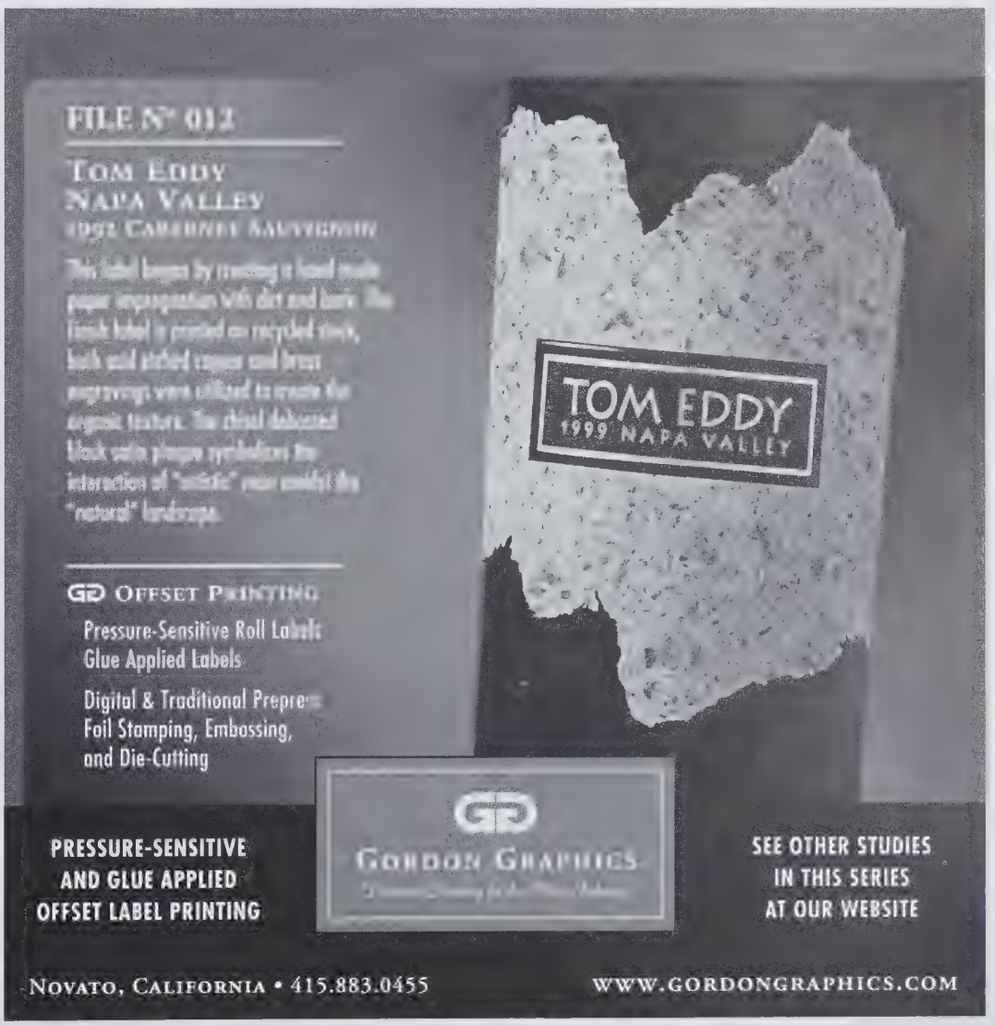
Perhaps the make-up of this year's Integrity Award-selection panel reflects the reach of the Fredriksons' work. It consisted of a retailer, a winemaker, a wine writer, a wine magazine editor, a grapegrower, executive director of a state wine and grape association, and Gleeson, who now presides at a family winery and formerly headed the industry research arm at AVF.

"Not only on the vintner side, but on the grower side, the Fredriksons are so well-respected," Gleeson says. "And they don't do their work in a vacuum. They lead by example in creating an industry open with ideas and information."

Peter Granoff, retailer-member of the award selection panel, master sommelier, and partner in Ferry Plaza Wine Merchant in San Francisco, says, "Jon and Eileen are great at finding the pulse of complex information and translating that information in terms that help all of us make better business decisions. Whether it's brand analysis, pricing, investment strategies, or sniffing out new trends, Jon and Eileen are one step ahead of most people."

The Fredriksons don't regret being quoted so often in the press. "We've made a big effort to try to straighten out reporters if they're off on the wrong angle," says Jon Fredrikson. "You know how negative news sells, and reporters really get eager to report that kind of story, but we try to keep the record straight. We try to throw cold water on stories reflecting badly on the industry and give the straight facts, to be a calming influence. Anything detrimental to the good reputation of California wine, we try to fight with good information." ■


BARARCHITECTS
wineries resorts clubhouses custom homes
1660 BUSH STREET, SAN FRANCISCO, CA 94109
T. 415 441 4771, F. 415 536 2323 | www.bararch.com



Chris Grow mower discharges triticale cover crop clippings (seed mix drilled into no-till vineyard floor) under vines at three miles per hour in April or May to suppress weeds and increase organic matter accumulation. Goal with triticale cover crop was to shade the significant thistle population in the high clay-content soil to weaken it and encourage deep fibrous root system. (Photo by Kirk Grace, vineyard manager, Robert Sinskey Vineyards, Napa, CA.)

Advancing sustainable winegrowing practices

In 2003, the Wine Institute and the California Association of Winegrape Growers (CAWG) established the California Sustainable Winegrowing Alliance (CSWA) to promote environmental stewardship and social responsibility in the California wine community.

In October, CSWA released the results of a survey of attendees at more than 70 sustainable practices workshops. Participants were California growers and vintners who evaluated their vineyard and winery operations using a 490-page workbook of best management practices [called the *Code of Sustainable Winegrowing*], which was developed by a joint committee of 50 members from the Wine Institute, CAWG, and other key stakeholders.

The results of the voluntary self-assessments are contained in the *California Wine Community Sustainability Report*. About 25% of the state's winegrowing acres and 40% of California's 260 million cases of wine production are represented in the report (see Figure I).

According to Jeff Dlott, PhD, acting director of CSWA, "The state of sustainable practices adoption can be organized into three statewide groupings: strengths, middle-ground, and the most opportunity for improvement." In the "strengths" category, he places the topic areas that include the sustainable best practices most frequently and most effectively used. They are described in four of the workbook's 13 chapters: Viticulture, Soil Management, Wine Quality, and Ecosystem Management (vineyard and winery).

Best practices outlined in five chapters have been adopted "with a high degree of variability across the state," and there is "room to improve the quality of participation." Dlott calls these the "middle-ground:" Pest Management, Vineyard Water Management, Winery Water Conservation and Quality, Human Resources (vineyard and winery), and Neighbors and Community (vineyard and winery).

Figure 1
Vineyard workshop participation results:
- **813** distinct vineyard enterprises in California
- **223,971** acres farmed by participants (42.3% of 529,000 total statewide acres)
- **137,859** of their acres were assessed (26.1% of statewide acres)
- **614** enterprises submitted assessment results (75.5% of total enterprises)
- **124,576** acres were assessed and results submitted (23.5% of statewide acres)

Areas of sustainable best practices where Dlott believes the survey shows the weakest participation and the most opportunity to improve practices are: Energy Efficiency (vineyard and winery), Material Handling (vineyard and winery), Solid Waste Reduction and Management (winery), and Environmentally Preferred Purchasing (vineyard and winery).

Dlott says this first evaluation sets a benchmark, and now that the California wine community knows where it is, it can begin to plan where to go. The U.S. Department of Agriculture's Natural Resources Conservation Service has indicated where it would like to see California's wine industry put its attention next. It has awarded the Sustainable Winegrowing Program (of which CSWA is a part) a $475,000 matching fund grant for development of air and water quality innovations. A new air quality chapter will be added to the workbook as a result.

Below, ***PWV*** has provided the survey results from two areas of the sustainability report: Viticulture and Soil Management. ***PWV*** will publish results from Pest Management and other areas in upcoming issues.

Viticulture

California growers have a long history of producing world-class quality grapes for winemaking. Winegrowers strive to select winegrape varieties best suited to regional climate conditions and soils to derive the maximum economic return available from their vineyards, thus

Stainless Beauty by the Tank Full

·36 YEARS·
Started 1968

More than nine hundred of the world's wineries utilize over 17,000 Santa Rosa Stainless Steel beverage tanks for their wine making. The largest and smallest wineries have relied on our expert craftsmanship, competetive pricing and guaranteed on-time delivery, in order to produce the finest wines.

Santa Rosa Stainless Steel has become the industry leader by providing a complete line of top quality wine making equipment, including:

- Storage Tanks
- Fermenters
- Stock Tanks
- Dimpled Cooling Jackets
- Effective Insulation with Cladding
- Catwalk Systems
- Harvest Bins

How may we meet your needs?
Call or visit us today. **707-544-7777**
www.srss.com

Santa Rosa Stainless Steel

A shining reputation for beverage tanks

1400 Airport Boulevard • PO Box 518 • Santa Rosa, CA 95402
707-544-7777 • Fax: 544-6316 • Email: sales@srss.com • www.srss.com

© 2004 Santa Rosa Stainless Steel

maintaining the economic viability necessary to support sustainable winegrowing. Winegrowers also have a record of adapting to change and confronting challenges as they continue to improve the quality of their winegrapes and wine.

Viticulture in the 21st century requires growers to think systematically and to understand that farming practices that were once viewed as having little or no external effects may now be scrutinized by other stakeholders as having major impacts to citizens, residents, and the local environment. It is important to recognize that growing conditions and grape prices vary significantly by region and variety, thus economic constraints will dictate the degree to which some practices can be implemented.

Benchmark data

1. Balanced Vines are the most important aspect of vine canopy management. More than 65% of growers reported implementing practices that lead to balanced vines. 34% of growers successfully implement vineyard design for balanced vines and look for shoots and fruit evenly distributed along the fruiting zone. An additional 39% adjust the crop at berry set and have minimal or no growth at veraison. Because of this balance, most growers do not remove leaves or shoots. 23% have over-vigorous vines or vines too weak for the crop load. 2% feel that vines are growing too vigorously at veraison.

2. Shoot Density is an important part of canopy management. To achieve balanced vines, 72% of growers remove weak and non-fruiting shoots, shoots with late ripening clusters, and shoots sprouting from the head of the vine. 36% of these growers also thin the spurs. 14% only remove shoots from the head area, and 3% do no shoot removal.

3. Fruit Exposure is needed in some growing areas to ensure that the clusters get enough light for desired color and flavors. 31% of growers do not remove leaves because the cluster zone is appropriately exposed. When leaf removal is necessary, 44% of growers remove leaves around clusters shortly after bloom to expose them to the appropriate amount of indirect light. 16% of growers have economic constraints in leaf removal, and 4% do no leaf removal.

4. Crop-to-Pruning Weight Ratio — A crop-to-pruning weight ratio provides a grower with an indication of overall vine balance by relating the pounds of fruit produced by a vine to its vegetative growth, as measured by pruning weights. Crop weights (per vine) are collected at harvest, while pruning weights are collected during the dormant season. This ratio provides insight into vine performance, but requires a significant investment in time to collect the data. While 9% of

Don't Cheat Your Wine

Quality Refractometers Create Quality Wine

ISO 9001 certified, ATAGO has been producing quality Refractometers for over 60 years. Winemakers around the world agree that ATAGO Refractometers are the most durable, efficient, accurate and attractive instruments available.

Digital Handheld Refractometer "Pocket" PAL-1

- 0.0-53.0% Brix Range
- Easy clean-up under running water
- Accuracy +/- 0.2% Brix
- Pocket... to your Palm... to Perform!
- List: $295.00 PAL-1

ATAGO U.S.A.,Inc.

13005 NE 126th Place,
Kirkland, WA 98034
1-877-ATAGO-USA
Email: wine@atago-usa.com
www.atago.net

NOW'S YOUR CHANCE TO CLEAN UP!

ProxyClean™
CONCENTRATE

The oxygen-based replacement for chlorinated cleaners. An excellent cleaning agent for barrels, bungs, hoses, presses, lab equipment, floors and clothing.

For more information check out our web site at
www.barrelbuilders.com

Call for FREE SAMPLE & Use Instructions

800.365.8231 • 707.942.4291
1194 Maple Lane, Calistoga, CA

BARREL BUILDERS INC.

growers are not familiar with the ratio, 43% of the growers have researched the concept but have not implemented it. 31% monitor the crop-to-pruning weight, and 12% monitor and record the weight and use the information to make adjustments in pruning.

5. Vineyard Design and Trellis impact canopy management and crop development. More than 80% of growers have trellis and vine spacing designed to accommodate the vigor of the vines and provide an open canopy for the fruit zone. Of this 80%, more than half do no leaf removal. 10% feel the trellis and vine spacing still shade the fruit even with leaf removal and correct shoot spacing. 2% report uncontrolled growth and no shoot positioning.

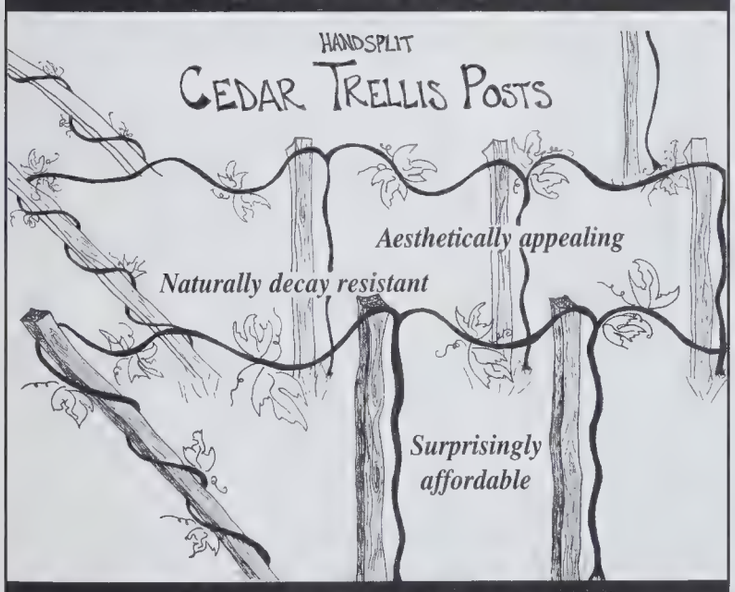
6. Vineyard Uniformity is challenging for growers. Uniformity of fruit ripeness is an essential factor of wine quality. 9% of growers make no attempt to assure uniform vegetative growth and fruit development, while 22% prune vines differently to match the vigor of the vines in an attempt to assure uniformity. 45% not only prune differently but also remove weak shoots and tailor irrigation to soil differences. An additional 22% drop slow-ripening fruit at or after veraison.

7. Monitoring Canopy Management requires growers to pay attention to microclimates existing in different blocks. More than 50% use defined practices to monitor canopy microclimates, with 45% using objective visual assessments throughout the vineyard and another 7% using visual assessments and recording their observations. They then use the information to take corrective actions when necessary. By documenting observations, a grower will have a recorded history of the vineyard that becomes more useful and valuable over time. 35% monitor by casual observation, and 10% do not monitor the canopy microclimate.

8. Environmental Due Diligence — Before a vineyard can be developed, it is important for the grower to know and understand the environmental issues and sensitivities that exist for the land, ecosystem, and the region. More than 60% of growers investigate environmental issues before putting land into a vineyard. 44% also do due diligence before land purchase and contact appropriate public and private entities to research potential environmental issues. 18% do due diligence after land purchase, and 11% do so while the vineyard is being established. 10% do no environmental due diligence, beyond legal requirements, before putting in a vineyard.

9. Soil Profile must be inspected, once the environmental conditions have been adequately researched and satisfied, to determine if modification may be needed. 58% use backhoes to verify the soil profile of the site, and 14% of grow-

Cedar, the Right Choice for your Vineyard



ENYEART CEDAR
800-551-6657
Ask for it at your local Vineyard Supply
Enyeart Cedar Cedar Mountain Brand
Or find a retailer at www.enyeartcedar.com/trellis

Serving the Wine Country Since 1979

- Civil Engineering
- Planning & Use Permit Processing
- Site & Utilities Engineering
- Wastewater Management Systems
- Erosion Control Plans
- Water Rights & Reservoir Engineering
- Roadway Grading & Drainage Plans
- Topographic & Boundary Surveys

LESCURE ENGINEERS, INC.
(707) 575-3427

ers also use GIS/GPS technology to fully map the soils on a site. 12% dig hand-augered holes before ripping the plow pan or hardpan, and 18% only use soil maps to understand their soil.

10. Soil Testing and Amending for physical and chemical properties should be considered before planting. 75% determine the soil structure and test the soil, with 29% amending with lime, sulfur, or gypsum. Another 46% also use compost or cover crops if the soil is found to be low in organic matter, and 12% use GIS/GPS technology to record this information.

11. Soil Sampling Pre-Planting for biological problems is critical in determining the health of the soil. 42% sample for nematodes and phylloxera. 15% include the roots of the previous crop in the sample. 44% know the previous cover crop, but no soil samples were taken to determine the presence of biological problems before planting. 6% do not take soil samples nor do they know the previous cover crop on the land that the vineyard now occupies.

12. Addressing Biological Problems to determine existing conditions before implementing a management strategy increases the effectiveness of the selected practices while reducing costs and investments. Of those with knowledge of biological problems, 53% do not fumigate, but 38% leave the soil fallow or rotate with another crop for at least one year, and 15% do the same for at least three years. Another 15% fumigate to address a particular problem verified by testing. 8% fumigate the soil without testing.

13. Rootstocks for healthy vines and quality fruit should start with rootstock selected for a particular vineyard. 89% consider the region or soil-born pests in the region when choosing vines. 47% also consider adequate vigor, and 42% seek advice from a winery, UCCE Farm Advisor, and/or a consultant.

14. Vineyard Layout is critical to canopy management and crop development. 86% of growers proactively consider the site's physical characteristics and design the vineyard to be safe and easy to farm with row orientation that minimizes erosion. 42% also align the trellis for regional wind patterns and sun exposure. 12% of the growers determine vineyard layout by property lines, with 8% of these growers trying to eliminate tractor turns by having the longest rows possible.

15. Row and Vine Spacing are important aspects of vineyard design. 46% of growers consider fruit quality and quantity, while 39% determine the spacing to accommodate site vigor potential and to maximize vine balance and fruit quality. 13% establish the row and vine spacing solely on size of the equipment to be used.

16. Scion/Cultivar selection is important to establishing a healthy, virus-free

vineyard. 65% of growers check their selection with a winery, UCCE Farm Advisor, and/or consultant. 36% test the scion for viruses and get a certified virus-free rating. Another 20% do not test but feel the scion is appropriate for the climate, soil, or rootstock. 3% test the scion for viruses and do not consider climate, soil types present, or rootstock.

17. Clone selection requires the synthesis of much information. 69% make selections based on information from local trials or broad-based statewide experience. 36% also consult with a winery, UCCE Farm Advisor, and/or consultant. 16% base selection on word-of-mouth, and another 3% select clones solely on availability.

18. Trellis and Vigor — The trellis literally supports all of the grower's decisions and practices. Trellis selection requires the consideration of vine vigor. 46% use wine quality as their main criterion and choose a trellis system based on vigor potential, and another 44% select a system that adequately supports the vine and requires the least amount of inputs and maintenance. 6% of growers base trellis and vigor decisions solely on price or quantity.

19. Habitat Conservation must be done to respect wildlife. 52% believe that a new vineyard does adversely impact existing habitat. Although 26% feel they impact habitat, they incorporate a 30-foot or wider buffer to minimize disruption. 9% believe that, while vineyard development displaces or disrupts some habitat, it also creates some.

20. Creation of Habitat can be consciously developed after the vines are in. 51% of growers establish native plants and provide water sources for birds and wildlife. 24% allow resident vegetation in non-crop areas with some native plants, while 8% do not mow or disk some non-crop areas.

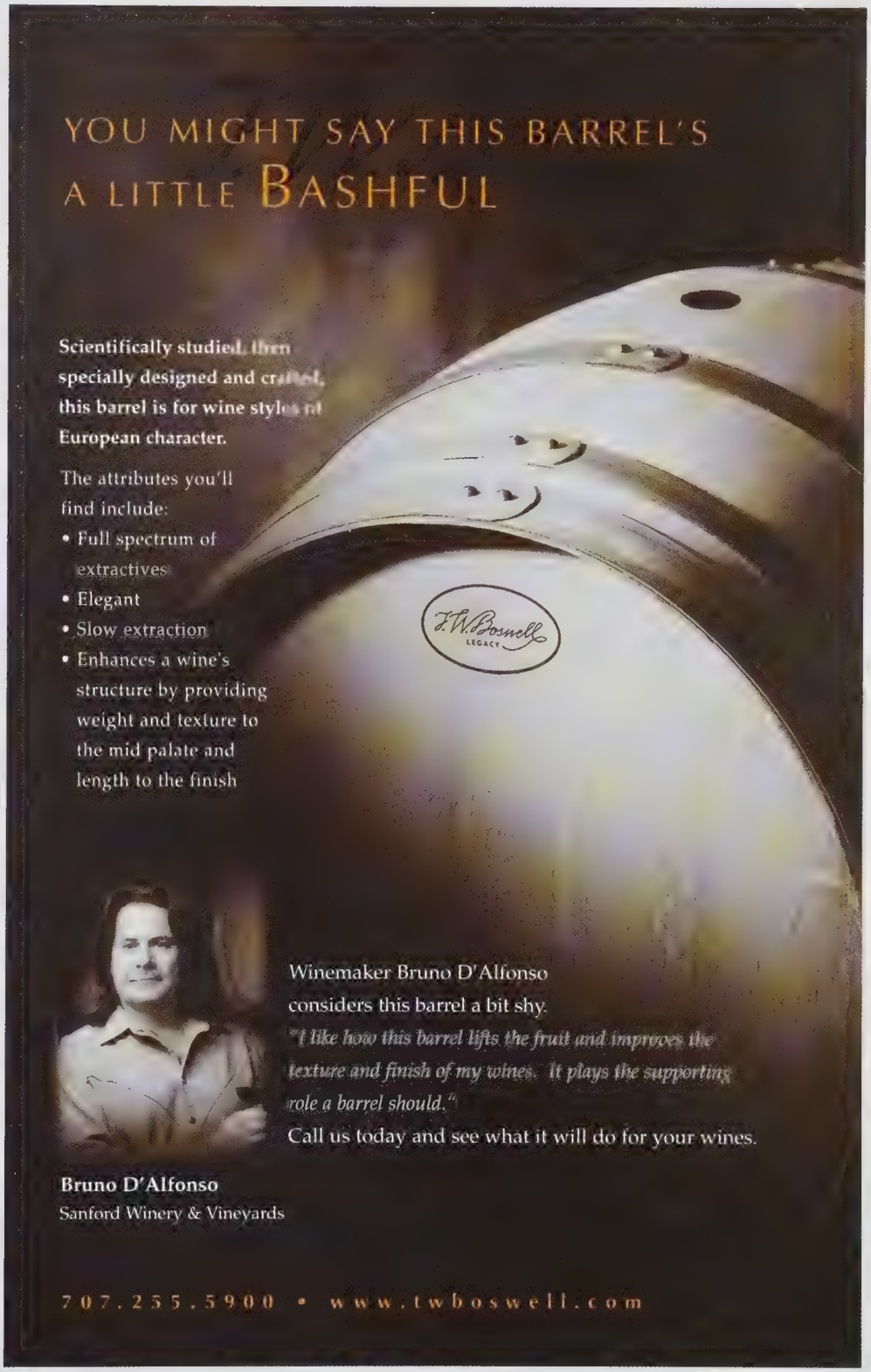
Targets for continual improvement

At least 30% of growers (statewide) can increase fruit quality and decrease inputs by improving vine balance through canopy management (criteria 1 through 7).

Soil Management

Healthy soil is the foundation of a sustainable vineyard. One-third of a grapevine lives underground in the form of roots. Leaves feed a vine sugar, but the roots feed it everything else. The soil provides the roots with three vital elements — water, nutrients, and air — which are best provided by soil that has good structure and a vibrant population of microbes and worms that breakdown organic matter.

While no product or technique has been developed that can mimic or


YOU MIGHT SAY THIS BARREL'S
A LITTLE BASHFUL
Scientifically studied, then specially designed and crafted, this barrel is for wine styles of European character.
The attributes you'll find include:
• Full spectrum of extractives
• Elegant
• Slow extraction
• Enhances a wine's structure by providing weight and texture to the mid palate and length to the finish
F.W. Boswell LEGACY
Winemaker Bruno D'Alfonso considers this barrel a bit shy.
"I like how this barrel lifts the fruit and improves the texture and finish of my wines. It plays the supporting role a barrel should."
Call us today and see what it will do for your wines.
Bruno D'Alfonso
Sanford Winery & Vineyards
707.255.5900 • www.twboswell.com

accelerate the healthy processes of microbes and worms, there are a number of ways that soil can be damaged in a short period of time. Improper or excessive tillage, compaction, and lack of organic matter all reduce the quality of the soil and ability of the roots to get the air, water, and nutrients needed to fight diseases, cope effectively with soil pests, and overcome other stresses.

Growers can take advantage of the soil's natural processes to improve vine health while allowing better access to nutrients. This translates into reduced need for increasingly expensive fertilizers. One way to utilize nature is through the use of cover crops in the vineyard, which increases the turnover of organic matter, can add important nutrients, and generally enhances the health of the soil. Awareness of this cycle helps growers make more informed decisions about fertilizers and soil amendments.

Because cover crops can compete with vine growth, it is important to determine whether the use of any cover crop or a specific cover crop mix is appropriate for the region and is likely to produce the desired effects according to individual vineyard characteristics.

Benchmark data

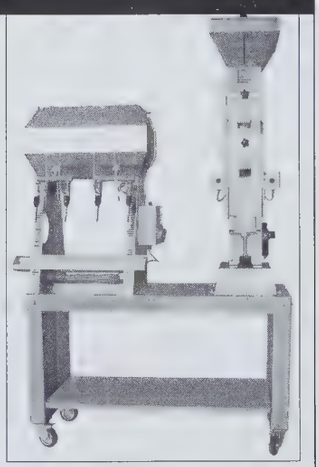
1. PETIOLE ANALYSIS — Growers make their living from the quantity and quality of fruit produced. As a result, most check the vine's nutrient status through petiole (stem) analysis to insure that nutrients are available in the vine to produce the desired crop. About 66% of growers are proactive and send samples to a lab for analysis yearly. Another 14% adhere to a two-year or three-year cycle for lab analysis. 13% respond to problems.

2. SOIL ANALYSIS — Since the cycle time for soil testing is so long, it is important for growers to have a method for recording test results in order to track the historic soil health of a vineyard. 55% of growers sample on five-year cycles if they have an ongoing soil amendment program. 18% also record the results using GIS/GPS technology. Another 9% sample soil every seven years while 33% sample irregularly.

3. INTERPRETING RESULTS and using that information in management decisions will improve soil health. 80% use expert help to interpret results of soil analysis in order to use them effectively in vineyard management decisions. 16% can interpret the results for themselves. 15% of growers accept vineyard nutritional recommendations as given.

4. NUTRIENT MANAGEMENT — Monitoring and managing plant and soil fertility depends on integrating numerous sources of information. 53% of growers use petiole analysis, vine vigor, fruit quality, leaf symptoms, and the history

Filling/Corking Machines



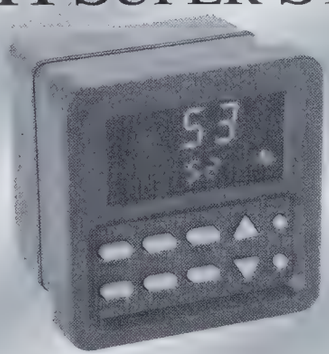
Entire unit is portable, with corking machine and model "Tivoli" linear gravity filling machine, with four spouts complete with electronic float.

- ***Operation:*** Pneumatic
- ***Weight***: 72 KG
- ***Overall dimensions***: 520x4000x1800 mm
- ***Hourly Production***: 500–600/hour

Manufactured entirely in AISI 304 stainless steel. The corking head is equipped with four ground-lapped jaws. Synthetic or natural corks with 22, 24, 26 may be used, and machine can be equipped for corks 28 on request. The cork is inserted rapidly (about 2 seconds), with a corking pin operated by pneumatic piston, to create less pressure on the neck of the bottle. The corking machine hopper is equipped with a mechanical agitator to allow continuous cork feed.

NAPA FERMENTATION SUPPLIES
P.O. Box 5839, Napa, CA 94581
575 Third St., Bldg. A, Napa, CA 94559
(707) 255-6372 Fax (707) 255-6462
www.napafermentation.com

RTI SUPER STAT



The Ultimate Control for
Temperature & Humidity

Surface Mount • Panel Mount • PC Option

Easy to program • Simple to operate
Min/Max Memory • High/Low alarms
PC Interface Option

Designed and manufactured by RTI to meet the needs of the Refrigeration Industry.

REFRIGERATION TECHNOLOGY, INC.
Call: (800) 834-2232
WWW.RTI2000.COM

(707) 987-0500 • Fax (707) 987-4581

of the vineyard to make informed decisions. An additional 33% of the growers supplement this information with water quality test results to make site-specific nutrient applications. 10% of growers are basing nutrient applications on broad deficiencies, and 3% make decisions based on time of year or other type of established program that is not based on site-specific information.

5. NITROGEN MANAGEMENT is an important element in the nutrient mix. 64% take local conditions and water into consideration and apply nitrogen in at least two separate applications (never when the vine is dormant), and another 10% never add nitrogen because it is provided by cover crops. 11% of growers use petiole analysis and vine vigor when deciding whether to add nitrogen. 11% apply nitrogen every year even though vine vigor is more than adequate.

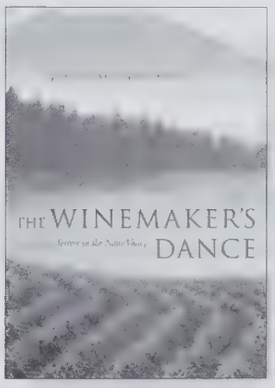
6. AMENDMENTS FOR WATER PENETRATION — Vine health is dependent on water availability. 43% of growers report no problem with water penetration in the soil. When growers notice a problem, 11% take no action, 12% add gypsum, 26% add manure or establish cover crops, and 8% have a long-term plan that includes increasing the organic content of the soil through cover crops, manure, and annual water quality testing.

7. AMENDMENTS FOR SOIL pH — If the soil pH is too high or low, this may impact the vine's ability to obtain nutrients present in the soil. 26% of growers report no pH problem in their vineyards. 6% do not know if they have a problem or not. Of those with a problem, 9% don't do anything about it, 30% add more than half the recommended levels of amendments to correct it. 29% also build up organic matter with compost and cover crops.

8. ORGANIC MATTER is critical to soil health. 33% add a combination of organic matter, such as cover crops and compost, and reduce tillage to lower the rate of organic matter breakdown. Another 41% add organic matter to the soil annually through compost, manure, or cover crops without changing the tillage rate. 19% don't add organic matter or simply let resident vegetation grow through the winter, with 3% of those growers also clean-tilling the vineyard.

9. SOIL COMPACTION can affect the ability of vine roots to access nutrients and water. 93% choose or modify equipment to minimize soil compaction. 48% also have an annual cover crop and minimize field activity during wet weather, while 26% maintain a non-tilled or reseeded cover crop and never go into wet fields. 5% don't take soil compaction into consideration when choosing

"A page-turner on wine and geology? Here it is....



Engaging, lucid, substantive, with colorful characters, brand-new theories and the momentum of a detective story."
—ROD SMITH, wine writer for the *Los Angeles Times* and *Wine & Spirits*

THE WINEMAKER'S DANCE
Exploring Terroir in the Napa Valley
BY JONATHAN SWINCHATT AND DAVID G. HOWELL

$34.95 PLUS SHIPPING
(PLUS SALES TAX IN CALIFORNIA)
AVAILABLE FROM *PWV* BOOKSHELF
UNIVERSITY OF CALIFORNIA PRESS

PAIGEPOULOS
COMMUNICATIONS

PUBLIC RELATIONS
FOR THE WINE INDUSTRY

Agile, Innovative, Professional

We are a full-service public relations agency offering
Strategic Planning, National and International Publicity,
Marketing Communications, Trade and Consumer Education Programs,
and other services specifically tailored to each client.

P.O. BOX 8087 ▪ BERKELEY, CA 94707
TEL: 510/528-0665 ▪ FAX: 510/528-0667
email: info@paigepoulos.com

equipment or working in the vineyards during wet conditions.

10. Knowledge of Soil Series, Water-Holding Capacity and Erosion Potential — Awareness of the unique characteristics of soil in a vineyard can allow a grower to make smart choices for amendments, additives, and pH balance. 60% of growers know the soil properties (erosion hazards, soil water-holding capacity, wilting point, and infiltration rate). 21% have also consulted with a qualified erosion specialist if erosion is a potential problem. 37% know the type of soil but not its properties.

11. Surface Water Diversions — Erosion is not a problem for growers in flat valley lands, and 25% of growers replied that this issue is not applicable to them. 57% have permanent or engineered drainage systems and minimal erosion issues, with 28% reporting no impacts from erosion. 16% use annual drainage structures and have moderate erosion issues in the vineyard and along roads.

12. Non-Point Source (NPS) Pollution Prevention is an environmental issue of growing concern and many growers are taking a proactive approach to addressing the issue. 18% maintain a permanent cover crop, have a no-tillage practice, use permeability and runoff rates in their irrigation planning, and have adopted a local soil erosion program. 32% of growers have implemented water diversions and an NPS monitoring plan. 38% maintain a winter cover crop, have a tillage plan, and are researching and planning to have an NPS monitoring program.

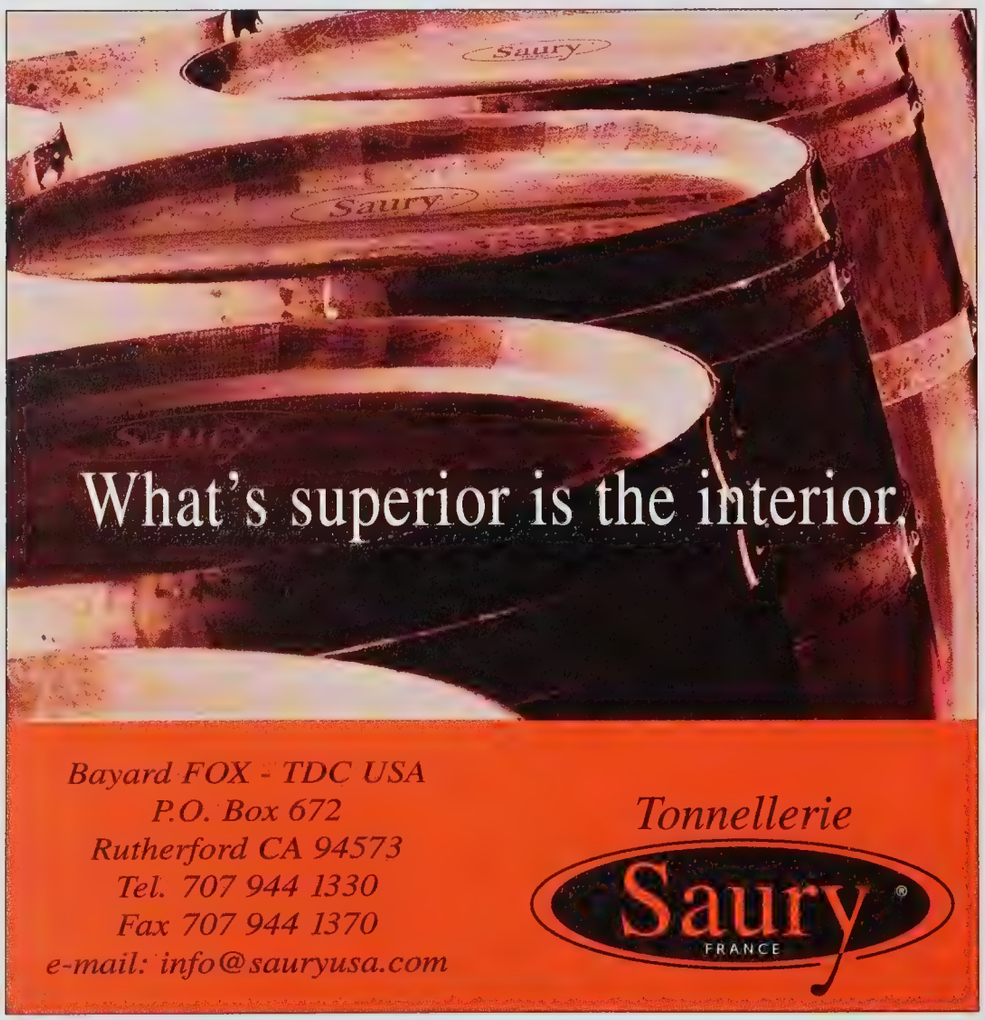
13. Air Quality is quickly emerging as a major concern for all of California agriculture, and regulatory pressures are increasing for growers in the state, especially in the Central Valley. Particulate matter 10 (PM10) is of increasing concern. Soil blown by the wind can be a source of PM10. 17% water their roads to minimize dust in the dry months, while another 50% also maintain an annual cover crop and only burn vineyard residues. 20% maintain a permanent cover crop, practice no-till farming, and do no burning.

14. Cover Crops and Soil Quality — Cover crops provide many benefits for vineyards and growers. 94% of growers invest management time in cover crops. 22% also manage a seeded annual cover crop in winter, while 47% maintain a permanent cover crop in vine row middles. Another 25% allow annual resident vegetation (non-seeded) in winter. Of the high percentage of growers using cover crops, 71% of growers select cover crops based on vigor of the site or erosion conditions; 23% track interaction between cover crops and vines to ensure no undesirable outcomes; 4% base cover crop selection strictly on the cost of seed.

Targets for continual improvement

There is an opportunity to improve soil management practices for 20% to 50% of growers, depending on the practices. There is a particular need to improve knowledge of soil series (criteria #10) and expand non-point source pollution prevention efforts (criteria #12) for 40% to 50% of the growers.

The California Sustainable Winegrowing Alliance (CSWA) has set a desired goal of 20% improvement in the average scores reported that are less than 3, on a scale of 1 [low] to 4 [high]. By harvest 2009, CSWA will strive to increase the average winegrower score to 3 out of 4. For practices that are already 3 or above, CSWA anticipates that winegrowers will demonstrate continuous improvement by the 2009 harvest. ■



ASSESSING *red wine* ASTRINGENCY

BY **Douglas O. Adams, James F. Harbertson, and Matthew S. Reid**
Department of Viticulture & Enology, University of California, Davis, CA

Red wines exhibit astringency — or can be perceived as astringent — in two ways. First, there are quantitative effects, which are widely acknowledged among wines made from different varieties but receive less attention within a single variety. Second, there are qualitative differences, and the vocabulary of these qualitative differences usually dominates the discussion of tannin characteristics within a single variety.

In this study, we measured tannin levels in 455 commercial Cabernet Sauvignon, Pinot noir, Zinfandel, and Syrah wines, using protein precipitation methods. As a result, we learned something about tannin levels in red wines and about how those quantities relate to the astringency of those wines. This effort illustrates why it is helpful for winemakers and viticulturists to think both quantitatively and qualitatively about red wine astringency.

Current thinking about tannins and astringency

Current ideas about the relationship between tannins and astringency have been derived from considerable excellent work in sensory science over the past several years. These studies have been summarized in a review by Richard Gawel, which we highly recommend to anyone interested in this topic.[1]

Astringency is not a taste like sweetness, sourness, or bitterness. Instead, it is a tactile sensation in the mouth, a feeling of dryness or roughness. It arises partly because the tongue is very sensitive to touch and normally covered with a thin film of saliva. The palate, teeth, gums, cheeks, and lips are also usually coated with a thin film of saliva, allowing the tongue to slide smoothly over the surfaces inside the mouth.

Our senses become accustomed to the normal state of stimulation; just as we do not continuously feel the clothes on our body, we are mostly unaware of the slipping and sliding inside our mouths as we breathe or speak normally. However, if the lubrication is altered, we notice it right away.

Astringent foods make the tongue drag on the palate, teeth, and gums. Oils, concentrated sugar solutions, and other viscous liquids increase the boundary layer and make the tongue slip over the surfaces more easily. This enhanced slippery sensation in the mouth, might be thought of as the opposite of astringency.

Saliva is 98% water, but contains a variety of proteins responsible for its lubricating properties.[2] Foods or liquids that remove salivary proteins from saliva or reduce the amount of saliva cause the tongue to drag on the surface features inside the mouth. This increased friction is recognized as astringency.

Dilute solutions of organic acids are capable of removing salivary proteins, causing them to precipitate out of the saliva, and can be thought of as causing astringency in a general sense of the term.

In addition to tannins, red wine contains several other components, such as alcohol, water, and acids, which together, alter the lubrication of our saliva, affecting the degree to which we experience astringency.

Tannin is related to astringency as sugar is related to sweetness

Just as sugar perception (or sweetness) is influenced by the acidity of a wine, astringency is influenced by the pH, viscosity, alcohol level, and ionic strength of a wine.[1,2]

We can measure sugar by several methods, but to know how "sweet" a particular amount of sugar will be, we must also know the acidity level as well as components that contribute to all of the other taste and texture attributes.

Similarly, we can measure tannins in wine, but to gauge astringency, we need to know several other things about the wine including its pH, viscosity, alcohol level, and ionic strength.

Thus, when we measure tannins, we do not claim to measure astringency, any more than we claim to measure sweetness with a simple sugar determination.

Sweetness is a taste caused primarily by sugars that can be altered by other components, and astringency is a tactile sensation caused by tannins that can be altered by other wine components. In a practical sense, we want to know about sweetness and astringency. But we must begin by measuring the compounds responsible for these sensory effects. These would be sugar, in the case of sweetness, and tannins, in the case of astringency.

Measuring tannins in wines

There are several ways to measure the amount of tannin in a wine. Perhaps the best way is by high performance liquid chromatography (HPLC). There are normal phase and reversed phase HPLC methods for tannin analysis.[3,4] By current methods, we obtain values for the monomeric flavan-3-ols that make up condensed tannin oligomers: catechin, epicatechin, epigallocatechin, and epicatechin gallate (Figure I). We can also obtain values for dimeric and trimeric procyanidins (tannins), but oligomers larger than tetramers are not routinely resolved by current HPLC methods.

Part of the difficulty with analyses based on HPLC separation methods can be seen if we consider how many chemically-unique tannin species there could

Table I

Variety	N(1)	T min.	T max.	Avg.	Std. Dev.
Zinfandel	200	140	1836	685	340
Pinot noir	134	30	998	323	186
Cabernet Sauvignon	87	160	1563	720	273
Syrah	34	132	792	368	169

N(1) = number of wines of that variety analyzed for tannin by protein precipitation;
T min. = lowest amount of tannin found in any of the wines;
T max. = highest amount of tannin found in any of the wines;
Average = mean for that variety;
Std. Dev. = standard deviation of the mean for that variety.
Units of tannin measurement are mg/L Catechin Equivalents.

be in a wine. If all four monomers were represented in a tetramer there could be 256 (4^4) chemically distinct tetramers present.

When we consider that the size of tannins extend to more than 15 subunits as determined by HPLC and that a 15mer alone could contribute 10^9 different molecules, it is easy to recognize the analytical difficulty in resolving all of the chemically-unique tannins present in a wine.[6] Certainly, the number of actual structures will turn out to be much lower than the number of possible structures, but for now, the best HPLC methods can only provide resolved measurements of monomers, dimers, and perhaps the most abundant trimeric flavan-3-ols.

Tannin assays based on protein precipitation

Tannins from various plants were recognized for their ability to transform animal hides into leather long before their chemical structures were elucidated. Indeed their name is derived from this characteristic, which is based on their ability to cross link proteins and "tan" leather.

Condensed Tannin Structure

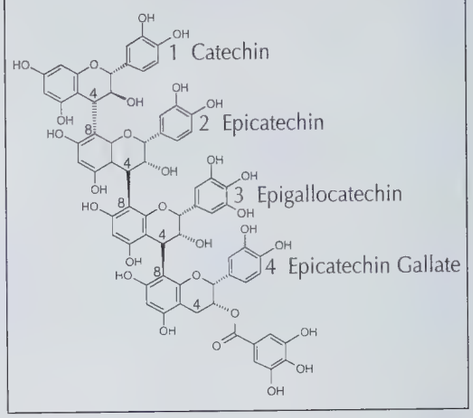


Figure I. A tannin primer: This hypothetical condensed tannin is made up of four subunits; catechin, epicatechin, epigallocatechin, epicatechin gallate, all of which are flavan-3-ols. Thus, this tannin tetramer is a polymeric flavan-3-ol, also referred to as procyanidins or proanthocyanidins. The first subunit (catechin) is bound to the second (epicatechin) by an interflavan bond between carbon 4 of catechin and carbon 8 of epicatechin. Likewise, epicatechin is bound to epigallocatechin and it, in turn, to epicatechin gallate by 4-8 interflavan bonds. In the terminology of condensed tannins, the first three subunits are referred to as "extension" subunits because each has carbon 4 joined to a subsequent subunit. Only the epicatechin gallate has a free 4 position and is thus referred to as a "terminal" unit. Catechin is considered an extension unit, even though it is on one end of the molecule, because it does not have a free 4 position. Thus this hypothetical tetrameric tannin has three extension units (catechin, epicatechin, epigallocatechin) and one terminal unit (epicatechin gallate). Note that the epicatechin gallate subunit is identical to the epicatechin subunit except that the epicatechin gallate has a gallic acid moiety esterified to the hydroxyl group in the 3 position of the epicatechin subunit. There could be 256 (4^4) possible tetramers based on these 4 subunits joined by 4-8 interflavan bonds, and 1024 (4^5) possible pentamers.

We now recognize two chemically distinct classes of tannins; hydrolysable tannins — such as pentagalloyl glucose, the dominant tannin in tannic acid — and condensed tannins, which appear to be condensation products of monomers typically found along with condensed tannins in plant tissues (Figure I).

Hydrolysable and condensed tannins differ in nearly all of their characteristics other than their general ability to bind and cross-link proteins. However, hydrolysable tannins are

Wine Country Real Estate
KAREN KENNY
Specializing in Vineyard, Winery and Ranch Properties in California's Premium Appellations
421 HEALDSBURG AVENUE ✦ HEALDSBURG, CA 95448
707-433-2700

Russian River — Pinot Noir and Chardonnay vineyard on 32+/– acres in excellent Russian River location. Grape purchase contracts available. Price of $1,650,000 is approximately $68,000 per planted acre. Call for details.

Alexander Valley — 480 acres adjoining premium Cabernet vineyard. Soils analysis available; developed springs plus new well, view home sites and three legal parcels. $2,500,000. Call for brochure.

Cole Ranch Appellation — 130 acres with 55 acres of premium varietals. Excellent home or winery site with $150,000 guaranteed income available to qualified purchaser. $2,300,000. Please call.

Looking for operating wineries and vineyard properties for qualified buyer. Strict confidentiality.

Please call Karen Kenny, Broker, Wine Country Real Estate

YOUR VINEYARD WINERY AND ESTATE SPECIALIST
www.winecountry-realestate.com

thought to bind to proteins by hydrophobic interactions, whereas condensed tannins associate with proteins through hydrogen bonds.[7]

Since condensed and hydrolysable tannins share the characteristics of binding to salivary proteins and reducing the lubrication provided by saliva, and since astringency is a tactile sensation rather than a taste, we cannot easily distinguish condensed from hydrolysable tannins when they are present in a liquid such as wine. Grape skins and seeds contain only condensed tannins, so hydrolysable tannins are present in wines only as a result of extraction from barrels or addition of hydrolysable tannins during winemaking.

Since tannins have long been known to interact with proteins, it is not surprising that several assays have been devised that take advantage of this phenomenon. One such assay, the gelatin index, is based on precipitating proteins by tannin and then measuring the light scattering caused by the particles of the protein-tannin precipitate.[8]

A second type of assay is based on collecting the protein-tannin precipitate by centrifugation and then using a color reagent to directly measure the amount of tannin in the precipitate.

We have recently adapted a well-known protein precipitation assay — the Hagerman and Butler assay — for use with wine and grape extracts.[9,10] The method is widely used by ecologists to measure tannin in leaf canopies and by agronomists to measure tannins in grain sorghum and forage crops.

The analysis uses a single purified protein that is inexpensive and widely available because it is a byproduct of meat production from cattle. The protein is a bovine serum albumin (BSA) and is a common ingredient in many biochemical solutions where a carrier protein is required or where a generic protein is needed in a rinse solution.

The assay proceeds by adding a suitably diluted wine to a solution of BSA in a buffer that allows maximum precipitation of the tannin-BSA complexes. The precipitate is collected by centrifugation and then dissolved in a basic buffer containing a detergent that disrupts the hydrogen bonds holding the protein-tannin complexes together in the precipitate.

The soluble tannin that was present in the precipitate is then measured using ferric chloride. The ferric ion complexes with the tannins and forms a blue chromophore with an absorbance maximum at 510 nm. The blue product is determined photometrically and compared to a standard curve prepared with a suitable monomer, such as catechin or epicatechin.

Since the BSA protein does not react with ferric chloride or interfere with the color reaction, this analysis provides a convenient assay for phenolics in wines or grape extracts. Note that it only measures the phenolics that can bind to BSA and precipitate along with the protein. We have posted our adaptation of the Hagerman and Butler assay on our web site at: http://wineserver.ucdavis.edu/people/Faculty/adams/tannin/index.htm

One interesting feature of protein precipitation methods is that tannins are distinguished from other phenolics by the same mechanism by which they

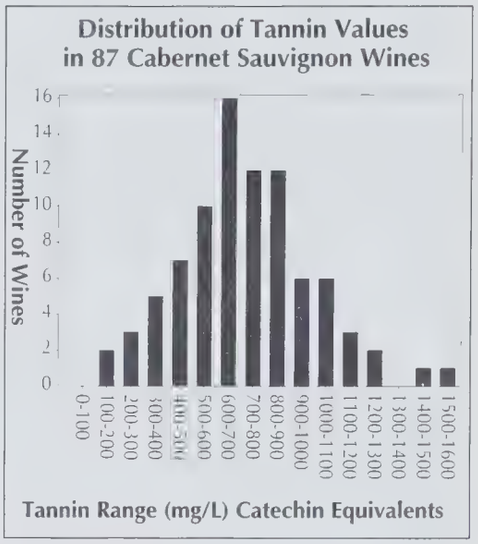


Figure II. Distribution of tannin values in 87 Cabernet Sauvignon wines. The distribution shows the number of wines in each category with tannin values separated into 100mg/L increments. All samples were commercial bottled wines dominated by California wineries. Nearly all of the samples analyzed thus far have been from the 1994–2000 vintages, but the data set includes a few older wines.

TREATED WOOD POSTS CCA/ACZA • RAIL STEEL T-POSTS • DRILL STEM END POSTS • ANGLE RAIL STEEL
Trellis System
Installations
All terrains, flat or steep
Quick & efficient installation
Follow-up service
Reasonable, competitive rates
Top quality components for all systems
Trained personnel
A&P
We design and install all of our systems. We also install shade houses.
A&P Ag Structures, Inc. ■ 11266 Avenue 264 ■ Visalia, CA 93277
Contact: David Parrish - President ■ Shawn Berbereia - Sales Manager
Phone 559.685.8700 ■ Fax 559.685.8622 ■ Corp. Toll Free 877.780.6985
aandpag@grapesystem.com ■ www.aandpag.com
Monterey County: Michael Griva - Sales ■ Phone 831.595.5291

are thought to cause astringency — that is by protein precipitation. The precipitation can be thought of as a purification or separation step where only those solutes that can bind to protein are present in the precipitate.

By contrast, in HPLC analyses, tannins are separated from other solutes and phenolics by their differential affinity for the solid phase matrix of an HPLC column and then detected by their absorbance at 280nm. Monomers, dimers, and the most abundant trimers are resolved, but tetramers and larger species are grouped together, and their total absorbance is expressed relative to a known standard, usually catechin or epicatechin. Thus HPLC procedures and protein precipitation methods both report tannin levels as mg/L catechin equivalents.

In comparing HPLC and protein precipitation methods, we can see that the basis of separation is different, as are the methods of detection. Nevertheless, both approaches report tannin as mg/L catechin equivalents, so we must be cautious when we compare values obtained by the two methods.

While we should certainly expect a correlation between tannin values obtained by HPLC and protein precipitation, to confirm the relationship we must compare values from the two methods when used on the same set of wines. This has not been done systematically for a suitable number of samples, so for now, we should probably consider HPLC and protein precipitation as different ways to look at tannins in wines.

Range of tannin levels in commercial wines

In the last two years, we measured tannin in more than 500 finished commercial wines using the BSA protein precipitation assay. In some cases, we simply collected small samples of wines that were used in student tastings at UC Davis.

CALIFORNIA GRAPEVINE NURSERY
All Cuttings Ozone Treated At Harvest
Custom Balanced Nutrition Program For Field Nursery And Increase Blocks
All Vines Are Field Grown
All Vines Have Always Been Hot Water Treated Post Harvest (At No Extra Charge)
The Highest Grading Standards In The Industry
The Highest Quality Planting Materials Available
We Are A Licensed Agent Of Authentic ENTAV-INRA Clones From France
1085 Galleron Road St. Helena, CA 94574
800.344.5688 707.963.5688 707.963.1840 (Fax)
www.californiagrapevine.com sales@californiagrapevine.com

We have also received generous wine donations provided specifically for our research by many cooperating wineries. We recorded relevant information about each wine, including producer, vintage, and the AVA or geographic region on the label. We collected the information in a database. In some cases, we requested additional information from winemakers about the wines.

In a limited survey of only 87 Cabernet Sauvignon wines, we found a range of tannin from 160 to 1,563 mg/L, a range of nearly 10 fold (Table I). The Cabernet Sauvignon wines we have measured thus far approximate a normal distribution about a mean of 720 mg/L (Figure II).

For 134 Pinot noir wines, the range was even greater, from 30 to 998 mg/L or 33-fold with a mean of 323 mg/L. For 200 Zinfandel wines, we found a range of 140 to 1,836 mg/L with a mean of 685 mg/L. From only 34 Syrah wines, we found a range of 132 to 792 mg/L with a mean of 368 mg/L.

Some of the results from this work are not surprising. For example, the fact that the Pinot noir average is lower than the average for Cabernet Sauvignon and Zinfandel should not surprise winemakers who make wines from these varieties or consumers who drink them regularly. That Zinfandel and Cabernet Sauvignon show similar averages could also have been anticipated.

On the other hand, some of our results were unexpected. For example, that Pinot noir and Syrah wines show similar averages was somewhat surprising, though it could be argued that this is probably because the number of Syrahs analyzed is still too low to allow a fair comparison (Table I).

Color measurement done in parallel with the tannin determinations shows that Syrahs typically have much more color than Pinot noir, but they have only a slightly higher average amount of protein-precipitable tannin. The most unexpected result is the large range of tannin concentration observed in commercial wines of a single variety. Perhaps one reason this was so unexpected is that this range is not reflected in measurements of total phenolics.

Protein-precipitable tannins compared to total phenolics

Measurements of total phenolics by the Folin-Ciocalteu (FC) method do not

show the same large range as the tannin levels measured by protein precipitation. This is partly because total phenolic measurements by FC include anthocyanins, monomeric flavan-3-ols, flavonols, and hydroxycinnamates. These other classes of phenolics certainly contribute to the total phenolics and may contribute bitterness to wines.

However, compared to tannins, the other phenolics probably contribute little to astringency at levels typically found in wines. We can see the highly variable fraction of the total phenolics that contribute to astringency only after separating protein-precipitable phenolics (tannins) from the others. Perhaps our inability to recognize this has favored qualitative descriptions of tannin perception because other assays failed to measure the functionally-significant phenolic fraction (tannins) that causes astringency. Thus, we were failing to measure differences in wines that were clearly distinguishable by tasting them (or perhaps more precisely by "feeling" them).

Given the large range of tannin concentration in wines of the same variety (Table I), it would seem prudent to consider both quantitative and qualitative explanations for the perceived astringency of a particular wine type or in expressing the difference in astringency between two wines.

The amount of protein-precipitable tannin can now be easily measured. By comparing the amount in a given wine with the average for wines of the same variety, we might be in a better position to consider a quantitative explanation for the astringency we perceive.

Quantitative versus qualitative astringency differences

Even now that we have performed analyses on more than 500 wines, tasting many of them in parallel, we recognize that — where wines exhibit differences in astringency — the difference is not always due to the quantity of tannin present. Often wines with similar tannin levels exhibit easily distinguishable astringency.

In one ageing experiment, the amount of tannin in a Cabernet Sauvignon was measured shortly after bottling and three years later. In this experiment, using protein precipitation, no difference was found in the amount of tannin between the newly bottled wine and the aged sample. Thus, any change in astringency that may have occurred during the three years of ageing could not have been due to a quantitative change in the amount of tannin.

Whether these differences were attributable to differences in pH, viscosity, or ionic strength was never determined. Thus, all we could conclude was that the differences were ***not*** due to differences in tannin concentration.

These sensory differences could also be due to subtle changes in the

Tonnellerie
Quintessence
Bordeaux
Quintessence :
The 5th element...
In order to complete the understanding of the universe,
Aristotle added to the four elements–fire, earth, air and water–
a fifth element of extreme purity derived from the sky and the stars: Quintessence.
To the enhancement of terroir, the care of grapes, the winemaker and
the passion of consumers, Tonnellerie Quintessence adds its savoir-faire:
the finest oak, sophisticated toasting and total traceability.
Tonnellerie
Quintessence
Bordeaux
Bordeaux: (33)5 56 72 82 00 - Sonoma: 707 935 3452 - www.tonnellerie quintessence.com

chemical structure of the tannins, which would not be revealed in quantitative measurements of the amount present. However, given the problems of separation of individual chemical structures described earlier, subtle structural changes in tannins will be more difficult to measure than the amount present, the pH, viscosity, and ionic strength.

If we can identify wines where all of these factors are the same, yet the astringency is clearly different, these wines would be valuable material for studying the subtle structural changes that can influence astringency. We know these structural changes occur, and they are probably responsible for some of the rich vocabulary that has emerged to describe astringency, such as "harsh" or "green" and "fine" or "mature." Nevertheless, for now these subtle modifications remain elusive and uncharacterized.

It may well turn out that qualitative changes in tannins are the most interesting. They are almost certainly responsible for the differences that develop in wines during bottle ageing in instances where little precipitation and loss from solution occur and where there is little change in pH or viscosity.

As limited as this conclusion may seem, distinguishing quantitative differences from qualitative differences might be one of the first things winemakers could do in comparing vineyards, vintages, and winemaking practices.

In our own work, we have found it valuable to routinely determine the tannin level in searching for explanations about the astringency of a particular wine. In light of the large range of tannins found among wines of the same variety (Table I) and the ease of measuring the tannin that precipitates with protein, it seems that quantitative differences should always be considered along with qualitative differences when trying to understand how vineyard treatments or winemaking practices influence a wine's astringency.

Strategic questions for future research

It seems appropriate to offer some suggestions for further research as we end this summary. It is particularly easy, since some of the most critical questions are also some of the most obvious.

One of the first questions might be: "Given the large range of tannin levels in commercial wines of the same variety, how much of a difference in tannin concentration is required to impart a clear difference in perceived astringency?" This work is important because it will help us interpret our analytical data on tannins in wine regardless of whether we get the values by HPLC or protein precipitation methods. This work must be undertaken by skilled sensory scientists using the accepted methods of their discipline.

Another important area for future research is the contribution that barrels make to the protein-precipitable tannin composition and astringency of red wines. As discussed above, there is a need to characterize the structural changes in tannins where we can rule out quantitative differences. A good example of this is the "softening" of tannins that occurs during ageing.

Finally, we must explain the very large range of tannins found in commercial wines of a single variety (Table I). Certainly winemaking practices play a large part in this story; but it seems likely that clone, soil, rootstock, and viticultural practices will also be found to have measurable influences on the composition of the final product. ■

References

1. Gawel, R. "Red wine astringency: A review." *Austr. J. Grape Wine Res.* 4: 74–95 (1998).

2. Sarni-Manchado, P and V. Cheynier. "Phenolic structure and astringency in wine-tasting." Vigne et Vin Publications, Bordeaux (1999): *J. Int. Sci. Vigne Vin.* Special issue (1999).

3. Peng, Z., P.G. Iland, A. Oberholzer, M.A. Sefton, and E.J. Waters. "Analysis of pigmented polymers in red wine by reverse phase HPLC." *Aust. J. Grape Wine Res.* 8: 70–75 (2002).

4. Kennedy J.A. and A.L. Waterhouse. "Analysis of pigmented high-molecular-mass grape phenolics using ion-pair, normal-phase, high-performance liquid chromatography." *J. Chromatography.* A. 866:25–34 (2000).

5. Prieur, C., J. Rigaud, V. Cheynier, and M. Moutounet. "Oligomeric and polymeric procyanidins from grape seeds." *Phytochemistry* 36:781–784 (1994).

6. Souquet, J.M., V. Cheynier, F. Brossaud, and M. Moutounet. "Polymeric proanthocyanidins from grape skins." *Phytochemistry* 43:509–512 (1996).

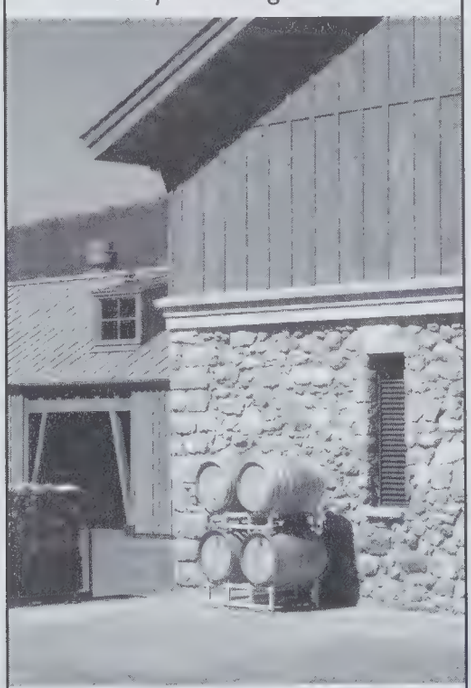
7. Hagerman, A.E., M.E. Rice, and N.T. Ritchard. "Mechanisms of protein precipitation for two tannins, pentagalloyl glucose and epicatechin(16) (4-8) catechin (procyanidin)." *J. Agric. Food Chem.* 46: 2590–2595 (1998).

8. Glories, Y. "Substances responsible for astringency, bitterness, and wine colour in wine-tasting." Vigne et Vin Publications Internationales, Bordeaux (France): *J. Int. Sci. Vigne Vin.* Special issue (1999).

9. Hagerman, A.E. and L.G. Butler. "Protein precipitation method for the quantitative determination of tannins." *J. Agric. Food Chem.* 26:809–812 (1978).

10. Harbertson, J.F., J.A. Kennedy, and D.O. Adams. "Tannin in skins and seeds of Cabernet Sauvignon, Syrah, and Pinot Noir berries during ripening." *Amer. Jour. Enol. & Vitic.* 53: 54–59 (2002).

Ozborndooli Architecture
has a new name:
OSBORN DESIGN GROUP
Winery Planning
Architecture
Project Management



822D College Avenue, Santa Rosa, CA 95404
707 542 3770; osborndesigngroup.com

Analyzing wine production costs

BY Jeff Sully CPA, CMA,
Dillwood, Burkel & Sully LLP,
Santa Rosa, CA
Dr. Terry Lease CPA,
Wine Accounting Professor,
Sonoma State University,
Jon P. Dal Poggetto CPA,
Managing Partner,
Dal Poggetto & Co. LLP,
Santa Rosa, CA

Editor's note: This article is adapted from Wine: A Global Business, *Liz Thach, Tim Matz, eds., Miranda Press, Elmsford, NY 2004. Books can be shipped for $45 from Sonoma State University Wine Business program, contact:* **winebiz@sonoma.edu.**

In a general sense, wineries use accounting information for much the same purpose as businesses in other industries: to issue financial statements to investors and banks or other creditors; to file tax returns with federal, state, and local tax authorities; and to assist management in planning and making decisions related to areas such as pricing and resource allocation.

Rather than attempt to summarize basic accounting and tax principles in a few pages, this article focuses on issues that are unique or of particular importance to wineries. The purpose is not to allow an owner or manager to do the winery's accounting; rather, it is to give the owner or manager an idea of how accounting information is developed and may be used, and to give the accountant a better idea of how to apply accounting principles and techniques to wineries. This should also help winery owners or managers communicate better with competent accountants they engage or employ.

One of the most important but difficult issues a winery faces is how to account for the costs of the various stages of wine production. This "product-costing" affects the valuation of inventory and determination of cost of goods sold (thus, net operating income) on financial statements and tax returns, and it influences any management decision that considers costs or profits.

Product costing: Introduction

To understand inventory costing, the wine production process should be broken down into a series of steps within a continuous flow of processes that begin when the grapes arrive at the crusher and end when cases of bottled wine leave the loading dock. The winery crushes grapes at a desired degree of ripeness, ferments the juice or must, and clarifies the new wine. The wine ages until the flavors and balance achieve their greatest potential. Finally, the wine is bottled. At that point, the production process stops.

Wine costing is the process of accumulating, allocating, and assigning both direct costs and overhead costs to wine inventory in a reasonable and consistent manner. Assigning a cost to this inventory, however, requires a further analysis. The production process is consistent and definable. Within that process, distinct stages of production activity can be defined. Each stage becomes a focal point for assigning costs.

For example, the *crush activity* has a collection of costs that are unique to crushing and fermenting grapes. *Bulk ageing* is another area of unique costs, where labor activity may be minimal, yet utilization of building capacity may be significant. *Bottling* has costs associated with getting the finished wine into bottles. Finally, there are *overhead costs* that support all three areas. What makes each of these areas distinct from each other is that they have different activities from the same resource requirements.

During the harvest, there will be higher demands for cellar labor, utilities for tank refrigeration, and specialized processing equipment, such as crushers and presses, etc. The ageing process requires barrels and space to store them, in addition to tank space for blending and chemistry adjustments. Labor will not be as high, although there will be a need for refrigeration during the warmer months.

Bottling requires the use of equipment that has sat idle for several months. Now it will run 12 or 14 hours per day for a month or two, and during this time labor will be concentrated.

Each of the activities above dealt with the same wine. In some stages (such as crush), the product changed in substance; in other stages (such as bottling), its changes were more a matter of form. Yet each stage was a different activity and placed different demands on the same resources, or *cost drivers*, to support that activity. Stating it another way, even though an hour of labor is an hour of labor, the *cost objective* of that labor is different for crush, ageing, and bottling.

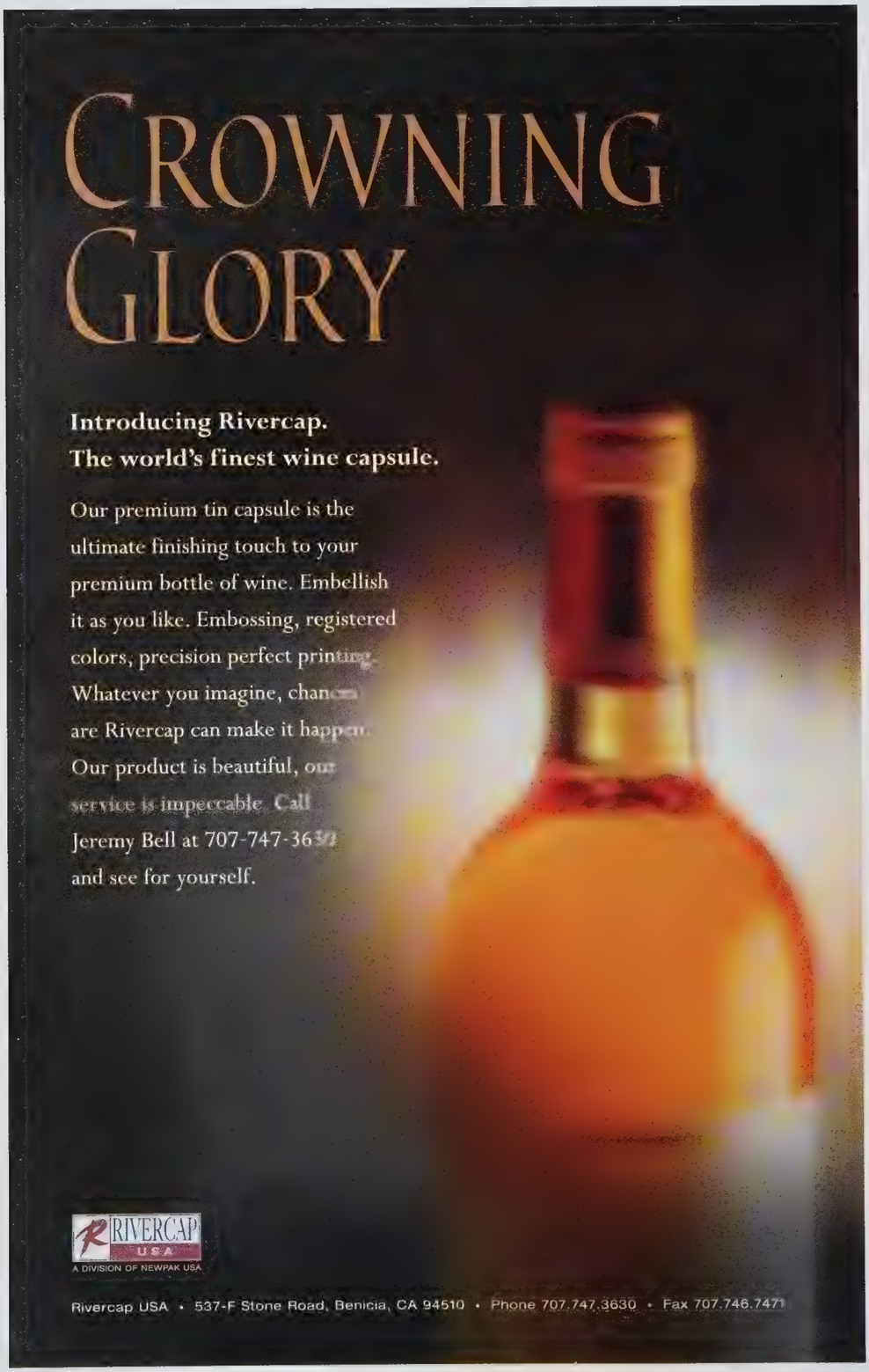
The cost objective is the accumulated measurement of cost drivers required to perform specific and related activities. Ageing wines requires barrels; but once the wines are sent to the bottling tank, the barrels are empty. Identifying and separating the activities that occur in the production process is the first step in being able to segregate costs that are unique to that activity, which in turn allows for a more accurate determination of the costs that most directly relate to a specific wine.

Defining cost centers

Once the different activities have been identified and segregated, they become

the basis for defining *cost centers*. A cost center is an accounting construct designed to accumulate the cost drivers during the timeframe over which costs are collected for reporting. A given cost center should cover only one type of production activity. Cost centers are at the foundation of costing procedures.

"Thinking like a winemaker" will also help develop cost center concepts. For example, farming costs are incurred to grow grapes. Costs associated with growing those grapes, plus harvest and transportation costs to the winery (along with costs of purchased grapes), become the initial costs for the resulting bulk wine.


CROWNING GLORY
Introducing Rivercap.
The world's finest wine capsule.
Our premium tin capsule is the ultimate finishing touch to your premium bottle of wine. Embellish it as you like. Embossing, registered colors, precision perfect printing. Whatever you imagine, chances are Rivercap can make it happen. Our product is beautiful, our service is impeccable. Call Jeremy Bell at 707-747-3630 and see for yourself.
RIVERCAP USA
A DIVISION OF NEWPAK USA
Rivercap USA • 537-F Stone Road, Benicia, CA 94510 • Phone 707.747.3630 • Fax 707.746.7471

At harvest, grapes come into the winery to be crushed, fermented, and made into wine. Crushing and fermenting adds more costs to the new vintage, and cellar activities add further costs to the bulk wine in inventory. All of these costs become part of the bulk inventory, as measured by dollars per gallon. When these wines are bottled, the cost of bulk wine to be bottled comes out of bulk inventory and flows into bottled wine inventory. Bottling costs are added at this time.

These stages represent four major cost centers: 1) farming, 2) crush, 3) production, and 4) bottling cost center. Two more cost centers would be used for costs that support multiple stages of production: 5) facilities cost center and 6) payroll cost center. In addition, the business would have one or more cost centers for non-inventory costs, such as 7) costs associated with selling the wine, or 8) costs for running the organization but not associated with producing the wine.

In a well-structured chart of accounts, they would be grouped and numbered by cost center to facilitate proper recording and efficient use of the cost information. Some costs, such as payroll costs and facilities-related costs (such as depreciation or rent, utilities, property taxes, and insurance) would be recorded initially in the payroll or facilities cost center and then allocated to the cost centers for the different stages.

Using cost centers

Each cost center contains the traditional grouping of cost classifications: *direct costs*, such as direct labor and materials, and *indirect costs*, such as supervisory labor and allocated overhead.

Direct costs are those costs that are associated only with a specific wine, including grapes, identifiable labor, and measured supplies.

Indirect costs are those costs associated with several different wines, because the same cost drivers may be shared by the different wines in the production process. The use of the resource by any specific wine is not measured directly, so the indirect costs must be allocated. The indirect costs may generate many different allocation methods. Some work fine, while others will generate inconsistent results. Different allocation methods are illustrated as part of the following examples of costing the different stages of production.

Costing in the vineyard (farming costs)

The farming cost center accumulates data pertaining to the cost of growing grapes for the current year. It includes direct labor associated with traditional farming operations, such as disking, pruning, thinning, harvest, etc. It also includes direct purchases of materials, such as fertilizers and other chemicals. Finally, the indirect costs must be allocated, such as supervisory labor, property taxes, trellis repair, and insurance, to name a few.

The question arises as to how to allocate these costs. Table I illustrates the most basic allocation method. If all blocks are evenly spaced with 535 vines per acre, the cost of growing grapes could be viewed as being $4,365 per acre ($109,125 / 25). On the other hand, if each acre provides approximately the same yield, the cost could be $1,180 per ton ($109,125 / 92.5) to grow grapes.

Table I takes the entire cost for this vineyard and divides it by the number of tons or acres to come up with a simple allocation rate. The allocation base is either tons or acres, but all grapes are treated equally. Changing the allocation base to vineyard blocks would refine this process, since different varieties have different yields. Assume that each block represents a different variety, with the acres and yield (in tons) for each variety presented in Table II.

Table I: Example of basic cost allocation method

Total acres	25
Harvested tons	92.5
Total farming costs	**$109,125**

Table II: Example of cost allocation by block

CATEGORIES	Block CS	Block ZN	Totals
Acres	6.5	18.5	25
Block yield (tons)	26.65	65.85	92.5
Total farming costs			$109,125

It still costs $4,365 per acre to farm. New information in Table II, however, indicates that the Cabernet block-CS cost $28,373 to farm ($4,365 x 6.5 acres), for a cost of $1,065 per ton ($28,373 / 26.65 tons). The Zinfandel block-ZN cost the same $4,365 per acre to farm, but the total cost for Zinfandel block-ZN is $80,752 ($4,365 x 18.5 acres).

Having harvested 65.85 tons of Zinfandel, the cost per ton is $1,226 per ton ($80,752 / 65.85 tons), compared to $1,065 for the Cabernet. The new allocation takes into account that different varieties will yield different tonnages. However, it still assumes that the varieties expend resources at the same rate for each block.

But what happens if the vineyard manager decides to replace the CS block of 535 vines per acre with 1,100 vines per acre, using recently developed technology? Does continuing to allocate costs as before provide a reasonable result? The required amount of some resources will be significantly

different for blocks that are radically different from each other (Table III).

Yields have gone up from the denser planting, but so have total costs. Using the allocation method in Table II, it costs $4,662 per acre to farm, with $30,303 allocated to Cabernet ($4,662 x 6.5 acres) for $814 per ton ($30,303 / 37.25 tons). Zinfandel is allocated $86,247 of costs ($4,662 x 18.5 acres) for $1,310 per ton ($86,247 / 65.85 tons).

Does it make sense that the cost of Cabernet would have decreased by almost 25% while the cost of Zinfandel increased by over 6%? This allocation creates a very large discrepancy between the cost of Cabernet and Zinfandel. However, Cabernet's increased vine density should require more labor, more tractor passes, more spraying, etc., while nothing changed with respect to Zinfandel. Also, a larger investment is required (with more depreciation) for Cabernet.

Table III: Cost allocation with different block techniques

CATEGORIES	Block CS	Block ZN	Totals
Vines per acre	1,100	535	—
Total acres	6.5	18.5	25
Block yield (tons)	37.25	65.85	103.1
Total farming costs			$116,550

Assume an examination of the various accounts reveals that there are variable costs associated with activities such as general labor, pruning, harvest, etc. Practical experience suggests that newer planting methods require more labor, simply because there are more vines to deal with. A simple way to measure the additional resources required is to assume that the labor hours spent in an individual block is a measurement of all variable resources being applied to that block.

Figure I: Vineyard accounting worksheet for BlackAcre Vineyards

FARMING COST ANALYSIS

Variable farming costs			$ 61,189
Harvest costs			23,611
Fixed farming costs			31,750
	Farming costs		$ 116,550
Variable farming costs by variety			
Labor hours, Cabernet	1,602	36.5%	$22,355
Labor hours, Zinfandel	2,783	63.5%	38,834
	4,385	100.0%	$61,189
Harvest costs by variety			
Tons, Cabernet	37.25	36.1%	$8,531
Tons, Zinfandel	65.85	63.9%	15,080
	103.10	100.0%	$23,611
Fixed farming costs by variety			
Total acres, Cabernet	6.5	26.0%	$8,255
Total acres, Zinfandel	18.5	74.0%	23,495
	25.0	100.0%	$31,750

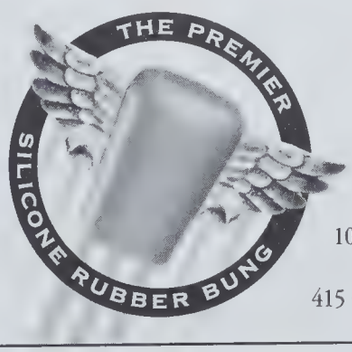
Per variety analysis	Cabernet	Zinfandel	Total
Variable costs	$ 22,355	$ 38,834	$ 61,189
Harvest costs	8,531	15,080	23,611
Fixed costs	8,255	23,495	31,750
Total	$ 39,140	$ 77,410	$ 116,550

Common size analysis (tons)	Cabernet	Zinfandel	Average
Variable costs	$ 600	$ 590	$ 593
Harvest costs	229	229	229
Fixed costs	222	357	308
Total	$ 1,051	$1,176	$1,130

In addition to costs described above, there are harvest costs that are more closely related to the tons of grapes harvested than to labor hours. Finally, there are fixed costs, such as property taxes and insurance, which do not relate to vine spacing in the different blocks or amount of grapes harvested. In order to arrive at an equitable allocation of costs for this vineyard, as defined by the two blocks, three allocation bases are used, based on information in Table IV.

The labor hours cost provides the basis for allocation percentages for variable costs in the vineyard. The Cabernet block uses 36.5% of labor hours (1,602 / 4,385) and it is allocated that percentage of the labor-related costs. The remaining 63.5% will go to the Zinfandel block, even though Zinfandel makes up 74% of the acreage. Consequently, Cabernet would receive $21,081 ($57,757 x 36.5%), or $565.93 per ton. Zinfandel would receive the remainder, $36,676, or $556.96 per ton.

$23,611 of harvest costs is allocated based on tons. Using that basis, each ton harvested costs $229 ($23,611 / 103.1 tons). Finally, $35,182 of other general overhead needs to be allocated. Since general overhead applies to the entire

First in Value & Service Since 1981


THE BOSWELL COMPANY
1000 Fourth Street • Suite 640
San Rafael, CA 94901
415 • 457-3955 • Fax 457-0304

AGAJANIAN VINEYARDS, INC.
Confidential Commercial Merchant & Broker
Winegrape Procurement and Inspection Service
Call GARY AGAJANIAN
707-433-6654 or
Fax 707-433-6684
www.agajanian.com
gary@agajanian.com

Table IV: Cost allocation based on block farming costs

CATEGORIES	Block CS	Block ZN	Totals
Total acres	6.5	18.5	25
Vines per acre	1,100	535	—
Yield (tons) per block	37.25	65.85	103.1
Labor-hours per block	1,602	2,783	4,385
Total farming costs			$116,550
Labor-related costs			57,757
Harvest costs			23,611
General overhead			35,182

vineyard in total, irrespective of number of vines planted or grapes harvested, the remaining overhead is applied at the rate of $1,407 per acre, or $245.53 per ton for Cabernet and $395.38 per ton for Zinfandel. Final cost per ton calculation is listed in Table V.

Different allocation methods or bases can be used, if management thinks that a different approach would be more appropriate. The important thing to remember is that the allocation method must be understandable, cost-effective, and truly reflect production in the vineyard.

Figure I provides an overview of a vineyard accounting worksheet. This is useful in understanding how all various components can be calculated.

Costing in the winery

Overhead costs are those associated with keeping the winery operation viable. Overhead costs support production, yet are not associated with a specific wine. These are costs that the winery will incur no matter how much wine is produced.

For example, a winery may have a building that cost $2,000,000 to build and can store several thousand barrels. That building will cost approximately $50,000 per year in depreciation, regardless of the volume of inventory stored in it. In any given year, one-third to one-half of the barrel inventory may be empty for several months. Those barrels could have over $100,000 to $500,000 in depreciation costs each year.

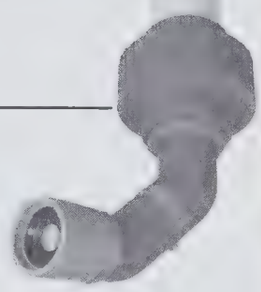
A winery may have varying levels of activity, yet they still relate to the same basic cost objectives. While the

Table V: Example of per-ton calculation

Cabernet Sauvignon	
Variable labor costs	$ 21,081
Harvest costs	8,530
Fixed overhead costs	9,146
Total	38,757
Total tons	37.25
Cost per ton	$ 1,040
Zinfandel	
Variable labor costs	$ 36,676
Harvest costs	15,081
Fixed overhead costs	26,036
Total	77,793
Total tons	65.85
Cost per ton	$ 1,181

LALVIN®
MALOLACTIC BACTERIA CULTURES

The result of extensive research and development, LALVIN MBR *"Microbes Be Ready"* CULTURES are produced to the highest standards. It's not surprising that the finest wines are made with the finest ingredients!
DISTRIBUTED BY
SCOTT LABORATORIES
2220 Pine View Way, P.O. Box 4559, Petaluma, CA 94599-4559
(707) 765-6666 · 1 800 821-7254
950 Brock Rd., South, Unit 1, Pickering, Ontario, Canada L1W 2A1
(905) 839-9463 · 1 800 RX SCOTT

Barrel Room Humidification
Fogmaster Sentinel 5850

REDUCE TOPPING LOSSES...
GAIN MORE PROFITS.
❖ Reduce topping losses without spending big bucks. Affordable even for the small winery.
❖ No wetting. Fine fog droplets float and evaporate to maintain humidity at desired point.
❖ Simple to install. Fits a wide range of room sizes and shapes.
❖ Low maintenance. No tiny orifices to plug. Atomizes without elaborate filtration or water treatment equipment.
❖ Contact us for more information today. Pays for itself so fast, you'll find it downright intoxicating.
THE Fogmaster CORPORATION
Foggers to make your life easier.
(954) 481-9975 • *Fax:* (954) 480-8563
www.fogmaster.com • *email:* info@fogmaster.com

assets (building and barrels) have varying utilization rates during the year (such as number of months barrels are full this year compared to last year), accountants usually make an assumption that will simplify costing, so as to avoid getting bogged down in the process while providing reliable and meaningful information.

One of the simplifying conventions that accountants adopt is to use the longest period of time to report costs that provides the desired level of information. The selected timeframe is then used for all cost allocations. For the examples that follow, a one-year timeframe is assumed.

Note that utilizing an annual timeframe "averages out" non-specific production cost differences that show up from month to month. Costing on a monthly basis would result in swings in per-gallon costs from vintage to vintage, depending on differences in the cost objective for each bulk wine in the cellar.

While perhaps technically accurate, the information presented may not be very meaningful. Since the production cycle is generally seen in terms of years, the costs per unit should reflect that same timeframe. To summarize, the timeframe chosen should be one that provides the needed level of detail without becoming overly burdensome.

One important category of overhead costs is *facilities costs*. They are incurred to keep the building open (without producing a single drop of wine), and include such items as utilities, insurance, property taxes, depreciation, and security. These costs are recorded in a facilities cost center.

Facilities costs need to be allocated to various activities within the business. Determining an allocation method begins with delineating the use of facilities in terms of cost objectives.

For example, assume that an entire winery is located in one building. Further assume that 55% of the floor space covers production prior to barrel storage. This will include the crush deck, fermentation tanks, lab, dry goods storage, etc. Another 25% of the winery building is devoted to barrel storage, and 5% to bottling. This will not include cased goods storage.

Remember, the production process (and cost accumulation) stops when the wine is bottled. Non-production activities, such as case storage, tasting room, sales, and administrative offices, make up the remainder of the floor space.

In other words, in this example, 85% of the building supports production activities — those associated with keeping the building open and in good operating condition. Thus, using floor space as an allocation basis, 85% of all facilities costs are allocated among the various bulk wines in inventory, and wines bottled this year. The other 15% of the costs would be expensed as a period expense (Figure II).

These percentages, once established, will not change unless the pro-

Air
for sale.

Many feel that wine aged in traditional oak barrels tastes best, and few if any will argue the contrary. The gap is closing however, and various oak integration systems have come a long way from where they were ten years ago. Enough to astonish reputed tasters, and find their way into reserve programs. One of many refinements has to do with micro-oxygenation, or helping a wine breathe right to properly mature. We've closely observed the way a barrel tends to breathe life into its guest. How a stave, when toasted by fire just right, can affect the composition of a red or white wine. Where did that stave come from? Was it dried in open air for three years? Asking a lot of questions has equipped us with many answers for those who might consider it audacious to compare barrel flavors to alternative techniques. If you need more convincing, please give a call. We have a glass of wine we'd like you to taste.

StaVin

StaVin Inc, PO Box 1693, Sausalito, California 94966 t(415)331·7849 f(415)331·0516 stavin.com

Figure II: Facilities allocation summary

Production costs	Sq. Ft. %	Period costs	Sq. Ft. %
Crush	10%	Tasting room	10%
Cellar	45%	Offices	5%
Barrel storage	25%		15%
Bottling	5%		
	85%		

duction flow is rearranged or the building is expanded. The percentages shown above contain some generalizations, but the purpose of the allocation process is to generate reasonably accurate and cost-efficient estimates of production costs.

It begins with the assumption that 85% of facility costs go into production, and that 15% are expensed as period costs (such as 10% for retail activities and 5% for administrative activities). Assuming that facilities costs total $87,980, production would be allocated $74,783, $8,798 to retail activities, and $4,399 to administrative activities, as shown in Figure III.

$74,783 applied to bulk wines is the estimated amount of facility costs that the winery incurred over the course of the year to support crush, production, and bottling.

Payroll costs

Before the example moves into the cellar, the payroll cost center deserves review. It is very common to have payroll entered directly into the respective payroll accounts residing in cellar, crush, marketing, etc. While there is nothing wrong with this method, it results in the loss of an important management tool. Winery owners are shocked to see what their total payroll costs are when presented as a whole. It's easy to miss when seeing payroll only in parts.

The payroll cost center collects all direct payroll costs from various activities, *plus* payroll overhead accounts, such as taxes, health benefits, and workers' compensation, and then allocates those costs to other cost centers. A typical allocation basis would be a percentage based on direct labor costs.

Crush costs

Many wineries fail to use a crush cost center and include the crush activity cost with cellar costs. As a result, white wines tend to be under-costed, while red wines are over-costed. The reason is that a wine that remains in the cellar for more than one year (such as a red wine) will have cellar costs allocated twice. If the cellar costs include crush costs, the wine will receive an allocation of crush costs in

Figure III: Facilities allocation

Total facilities costs		$ 87,980
Less period costs		(13,197)
Allocated to production		$ 74,783
Allocated to production (sq. ft.)		
Crush	10%	$ 8,798
Cellar	45%	39,591
Barrel storage	25%	21,995
Bottling	5%	4,399
	85%	$ 74,783

WASTEWATER TREATMENT SYSTEMS
ADI SYSTEMS INC. markets anaerobic and aerobic treatment to industrial processors worldwide. In the USA and Canada, ADI provides design-build services for wastewater treatment involving anaerobic and aerobic technologies, as well as physical-chemical processes. Overseas, minimum packages (process engineering plus proprietary/major equipment) are offered to partners or directly to industries.
Your Request for Quotation will receive prompt attention from our well-experienced and qualified treatment engineers and scientists.
www.adisystems.ca
ADI
CANADA'S 50 BEST MANAGED COMPANIES
1133 Regent Street, Suite 300, Fredericton, NB E3B 3Z2 Canada • 506 452 7307 • Fax: 506 452 7308
182 Main Street, Unit 6, Salem, NH 03079 USA • 603 893 2134 • Fax 603 898 3991 • systems@adi.ca

the second year, even though it did not benefit from those crush activities.

The problem is compounded because wines that remain in the cellar less than one year will receive less than a full allocation of crush costs, as some crush costs went to wines that have already been in the cellar for a year. The way to solve this problem is to have a crush cost center.

For purposes of the ongoing example, assume that crush costs total $66,655. (Remember that crush costs would include an allocation of facility costs.) A simple way to allocate crush costs would be on a per-gallon basis. For example, if Cabernet made up 25% of the new wine by volume (gallons), then it would receive $16,664 of crush costs. (For the sake of conserving space, the example will now track costs allocated only to Cabernet Sauvignon.)

A variation on this allocation method could be used if the wines used labor disproportionately to their volume. In the variation, labor costs would be separated from other crush costs and allocated based on labor hours employed for each wine type. Remaining costs would still be allocated based on the total number of gallons.

The important thing is to try to make allocation assumptions that accurately reflect what is going on in the production process while keeping the allocation process relatively simple to administer and understand.

Figure IV: Bottling information worksheet

BOTTLING INFORMATION

Date Bottled	January 15 - 16, 2003					
Product Bottled:	2001 Cabernet		Code	CS750-01		
Cases Bottled		2,343	*2.3775 =	5,570		
					Cost Analysis Fixed	Variable
Gallons removed from bulk		5,701				
Estimated Losses		(131)				
Cost of Gallons removed from bulk				Cost 121,477.00	66,812.35	54,664.65
Glass (cases)	2,348	Unit Cost $7.350		Cost 17,257.80		17,257.80
Packaging		Unit Cost		Cost		—
Corks	28,500	Unit Cost $0.420		Cost 11,970.00		11,970.00
Capsules	28,500	Unit Cost $0.260		Cost 7,410.00		7,410.00
Front label	30,500	Unit Cost $0.180		Cost 5,490.00		5,490.00
Back label	28,250	Unit Cost $0.080		Cost 2,260.00		2,260.00
			Direct Materials	44,387.80		
Other						
Direct Labor				Cost $ 4,428.27		4,428.27
Supervisorial				Cost	—	
Facilities allocation				Cost $ 2,399.23	1,758.64	640.59
Other bottling overhead				Cost $ 2,066.53		2,066.53
Total Bottling Costs				$ 51,215.30	68,570.99	106,187.84
Total Costs				**$172,692.30**		
Total Cases Bottled				2,343		
Materials				$ 18.94	FOB	186.00
Labor				1.89		
Overhead				1.02	Cont Margin	140.68
Bottling Cost per case				21.86	Cont Margin %	75.6%
Total Bulk Wine Cost per Case				51.85	Gross Margin	112.29
					Gross Profit %	60.4%
Total Cost per Case				$ 73.71		

Production costs

This cost center covers the production process once the wines have been declared off-fermentation. It involves cold stabilization, fining, filtering, barrel ageing, blending — everything up until bottling. These costs apply to all bulk wines in inventory, and, in principle, the allocation is straightforward, based on gallons in inventory. Simply take each wine's number of gallons and divide by total gallons to come up with an allocation percentage.

A complicating factor in practice, however, is the timeframe covered. Different wines will come off fermentation and into the production cost center and then out of the production cost center and into bottling at different times.

Allocation of production costs to inventory should take into account the amount of time a given lot spends in the cellar. For example, 5,000 gallons held six months will require fewer resources and, therefore, should absorb less cost in total than 4,200 gallons held a full year.

To accurately allocate cellar costs, a weighted average system is needed.

EXPERTISE THROUGH EXPERIENCE
HOYT SHEPSTON, INC.
CUSTOMHOUSE BROKERS
Ocean & Air International Freight Forwarders
Serving your Import - Export Needs
700A Dubuque Avenue
South San Francisco, CA 94080
(650) 952-6930
Fax: (650) 952-5691

The allocation calculation also needs to consider that, by year end, some wines may have been bottled and not appear in inventory at all.

Table VI shows a weighted average calculation and resulting allocation of production costs. Note that wines from the 2000 vintage that spent less than 12 months in the cellar were bottled and would not show up in the bulk wine inventory at year end. The actual year-end gallons in inventory are 44,742, comprising all 2002 wines and those 2001 wines that were in the cellar for 12 months.

Table VI: Bulk wine cost summary (December 31, 2002)

Variety	Year	Gallons	Months in cellar	Extended	Wtd. avg. %	Yearly cellar costs
Cab Sauv	02	6,146	2	$ 12,292	3.2%	$ 4,649
Cab Sauv	01	5,701	12	68,412	17.7%	25,877
Cab Sauv	00	5,845	6	35,070	9.1%	13,265
Zinfandel	02	11,326	2	22,652	5.9%	8,568
Zinfandel	01	9,455	12	113,460	29.4%	42,916
Zinfandel	00	10,560	4	42,240	10.9%	15,977
Chardonnay	02	4,365	2	8,730	2.3%	3,302
Chardonnay	01	4,999	12	59,988	15.5%	22,691
Chardonnay	00	4,502	1	4,502	1.2%	1,703
Sauv Blanc	02	2,750	2	5,500	1.4%	2,080
Sauv Blanc	01	3,289	4	13,156	3.4%	4,976
Total		**68,938**		**$386,002**	**100.0%**	**$146,006**

Administrative costs

In some cases, where indirect costs have not already been accounted for in the production departments, it may be necessary to allocate a portion of the costs reported as administrative costs.

For example, materials need to be ordered, compliance reports need to be filed, and repair and maintenance need to be scheduled. To the extent these costs are included in administrative costs, part of the administrative costs should be allocated to inventory through production cost centers. This could be a percentage of total actual administrative costs, or the sum of separately identified accounts within the administration cost center.

As a general rule, wineries try to mimic the amount of administrative resources devoted to production management, expressed as a percentage allocation. The part of administrative costs allocated to inventory would, naturally, reduce administrative expenses recognized on the income statement. The part of administrative costs allocated to inventory should be further allocated to

French & American Oak
FROM SPECIALIZED FAMILY PRODUCERS
BERGER et FILS
The Barrel for Cabernet Sauvignon
Jean-Louis Bossuet
THE MERLOT BARREL
THE BOSWELL COMPANY
FINESSE BURGUNDY BARRELS
MERCUREY
FRANCE
PINOT NOIR • CHARDONNAY • SYRAH
1000 Fourth Street Suite 640 • San Rafael CA 94901 • 415 • 457-3955 • Fax 457-0304
WWW.BOSWELLCOMPANY.COM

different production cost centers (vineyard, crush, production, bottling) based on management's estimate of how much time they spend on each area.

Bottling costs

Bottling marks the end of the production process. At this point, all production costs accumulated so far in the bulk wine inventory for the wine to be bottled are transferred to bottled wine. This cost center would contain account balances that tend to follow bottling activity. In other words, one would not expect to see a lot of accounting activity until actual bottling, save for some depreciation and overhead allocations.

One bottling cost center account would be for bottling materials. All such materials would be added to this account and spread among all wines bottled. For example, if bottling materials has an account balance of $137,001 and 6,387 cases are bottled for the year, the cost per case would be $21.45. That method works and is fairly common.

A more accurate method, however, would reflect differentiated packaging costs for special or more expensive wines requiring a more "luxurious" package. In the prepaids section of the balance sheet, there would be separate accounts for glass, corks, labels, etc.

The recorded cost per unit for each item ($.42 for a cork, $7.05 for glass, etc.) would be used to transfer costs from prepaid bottling supplies to the bottling cost center for materials used in the bottling run. Differentiating packaging materials in this way allows those costs to be analyzed in a meaningful way (for example, compared to budgeted costs).

This is a good place to discuss an idea that applies in all areas but probably has the biggest impact in bottling: Overhead should be allocated to production cost centers based on budgeted costs and in such a way that equal activity bears equal costs. Otherwise, the cost allocation could be badly disproportionate to the use of resources.

Bottling, for example, generally occurs a few times each year, and the heaviest bottling may be early in the year, with a smaller run just before harvest. If overhead costs were allocated on a monthly basis as the costs are incurred, the first bottling run would be light on overhead, and the later one would be excessively burdened with overhead costs.

From an annual bottling budget, overhead costs may be used to develop a set of standard costs that would be applied to each bottling run on a per-case basis. Any difference between the overhead applied base on budget-derived standards and actual overhead allocated to the bottling cost center should be minor, and it would show up as a variance in cost of goods sold.

Next step is to bring in costs from the bulk wine inventory and add them to the packaging costs. During the course of bottling, some wine will be lost from what was last recorded as the gallons in inventory. Keep in mind that costs accumulated to-date will become part of the final bottle cost. There is no need to expense spillage or filtration losses, since they will be absorbed by the bottled wine as part of the final cost.

Figure IV looks at the bottling of the 2001 Cabernet Sauvignon. Assume an estimated 5,701 gallons (with $121,477 of costs accumulated from other cost centers), will be bottled. The bottling report brings forward all costs from previous activities and adds final costs from this last stage of production.

In the bottling information worksheet (Figure IV), a percentage of the costs of bulk wine are designated as fixed costs, based on a previous study of cellar costs, but the percentages may vary from winery to winery. Breaking costs into fixed and variable components allows for contribution margin analysis and variable budgeting. Also note that cased goods storage is not included in these calculations.

Cased goods storage is a period cost, and should be expensed as a distribution or marketing cost. It is important to remember that once the wine is bottled, all production costs stop. In Figure IV, the product cost of $73.71 should be used to reduce inventory and charge cost of goods sold for each case of 2001 Cabernet Sauvignon. ■

Vintners ADVANTAGE

Vineyard & Winery Management Software

Vineyard & Winery Operations
Main Module interfaces with all others modules and includes: Vineyard Information, Grape Receipts, Work Order Planning, Barrel Tracking, Compliance Reporting, Composition & Costing, Bulk Shipping, Laboratory, & Grower Payments.

Bar Code Module interfaces with the Vineyard & Winery Operations module allowing for the tracking of individual barrels in barrel related work orders.

Brandy and Spirits Module includes: Warehousing to Barrel, Blending, Fortifications, Sampling, Surveys, Spirit Running & more.

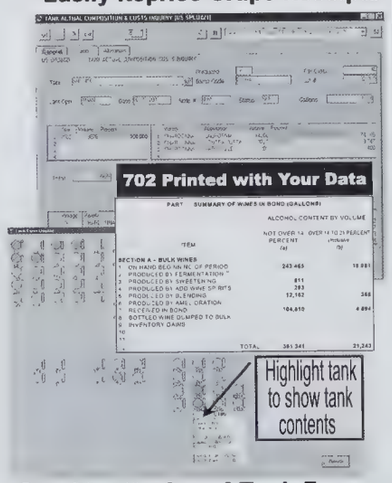
Grower Contracts Module includes: Contracts by Year, Variety & more criteria, Payment Checks, Remittance Advice, State Crush Report, Brix Range Penalty/Bonus, & Contract Liability.

Sales Contracts Module includes: Bulk, casegood, & barrel sales contracts by variety & vintage year. Integration to shipping for contract fulfillment, & Grower Contracts for capacity planning. Allocate wines for specific blendings or customers.

Modules featured in this ad highlight just a few of the modules in our complete software suite. Watch for our ad in the next issue for information on other modules.

United Wine & Grape Symposium
Booth 103

Composition Presented Visually
Easily Reprice Grape Receipts



Graphic Display of Tank Farm

MIS Modular Information Systems

866.647.3757 x 204
Vintsales@miscorp.com
www.miscorp.com

NOVEMBER/DECEMBER 2004

SHOWCASE OF PROFESSIONAL SERVICES

PW WINERY & VINEYARD

SUPPLIER INDEX

ADI Systems, Inc.	64
Akeena Solar	64
American AgCredit	67
Axiom Engineers, Inc.	70
B A R Architects	68
Brotemarkle, Davis & Co.	68
Castoro Bottling Co.	65
Joseph Ciatti Co.	63
Compliance Service of America	67
Dal Poggetto & Company, CPAs	74
eSkye Software	64
ETS Laboratories	69
Fred Lyon Pictures	71
Government Liason Services, Inc.	72
Hall & Bartley	65
Heritage Systems, Inc.	63
Hinman & Carmichael	71
Hoyt Shepston, Inc.	69
Journey Bottling Co.	66
Kennedy/Jenks Consultants	73
Laurence Ferar & Associates	74
Lescure Engineers, Inc.	63
Lodi Winegrape Commision	73
Modular Information Systems	68
James Nolan Construction	62
O'Donnel Lane Consultants	71
Osborn Design Group	70
Paige Poulos Communications	67
The Personnel Perspective	70
Pinnacle Capital	71
Premier Power Renewable Energy	69
Reichers Spence Associates	72
Craig Root & Associates	74
Scott Laboratories	62
Scion Advisors	65
Stoel Rives, LLP	62
Summit Engineering, Inc.	66
Vinquiry, Inc.	66
Wines Central	72
Wine Country Real Estate	73

Accounting
Architects
Compliance Services
Computer
Consulting
Construction
Consultants
E-Commerce
Engineering
Financial Services
Insurance
Laboratories
Leasing
Legal Resources
Personnel Services
Public Relations
Real Estate Brokers
Wine/Grape Brokers

James Nolan Construction, Inc.

James Nolan Construction, Inc., a mid-sized general contracting firm, performs over $40-million worth of commercial and high-end residential work annually.

For more than 16 years, James Nolan Construction has taken pride in the construction and renovation of premium wineries, commercial facilities, and residences in Napa Valley.

The path to a successful project begins long before construction commences. Increasingly on projects, clients elect to make the firm a part of their team as early as possible. Early involvement allows many different programming services for your project to be provided, including: design review, value engineering, estimating and budgeting as design milestones are completed, and assistance with permit acquisition.

JAMES NOLAN

CONSTRUCTION, INC.

James Nolan Construction has forged strong relationships with the finest architects, designers, engineers, and subcontractors that allow teamwork throughout the duration of your project — from design inception to completion.

The firm has a proven track record of meeting scheduling obligations, allowing clients to meet their own deadlines.

Regardless of the size of the project you may be considering, the following components are essential: quality, affordability, and timely completion. James Nolan Construction can help to make all of these a reality.

For more information, contact:
James Nolan Construction
PO Box 90, St. Helena, CA 94574
tel: 707/963-3222; fax: 707/963-3828
website: www.jnc-construction.com

Scott Laboratories, Inc.

Scott Laboratories offers a variety of technical and processing services to wineries.

Scott's laboratory is the senior independent wine laboratory in North America and since its' founding in 1933, has provided analytical services to the wine and spirits industries.

From the beginning, Scott's service has been consultative in orientation. Problem solving receives equal billing with speed and accuracy. In-house options include gas chromatography, HPLC, and atomic absorption.

In addition to consultative work, other specialties include fermentation trouble-shooting, filterability testing, and BATF-certified analysis for export. The laboratory is also certified by the State of California for water analysis (including well and waste water).

In addition to outside services, Scott's laboratory provides technical support for customers who use enzymes, tannins, gelatins, and adjuvants offered in Scott's portfolio of winemaking supplies. These products have been shown to be useful winemaking tools that can target specific winemaking problems, such as clarification, color stability, structure, and harsh tannins.

For more information, contact:
Scott Laboratories, Inc.
2220 Pine View Way, Petaluma, CA 94954
PO Box 4559, Petaluma, CA 94955
tel: 707/765-6666; fax: 707/765-6674
e-mail: info@scottlab.com
Scott Laboratories, Ltd.
950 Brock Rd. South, Unit 1
Pickering, Ontario L1W 2A1, Canada
tel: 905/839-9463; fax: 905/839-0738

PLEASE SEE SCOTT LABORATORIES' ADS, PAGES 55, 85.

Stoel Rives, LLP

With more than 70 clients in the wine industry, attorneys in Stoel Rives' winery and vineyard practice group are trusted advisors on all aspects of the legal and business issues facing wineries and vineyards.

Winery and vineyard management legal service areas:

- Business formation
- Business succession
- Construction and design
- Employment; workers' compensation; occupational safety
- Environmental and natural resource issues
- Financing
- Income taxation
- Land acquisition
- License agreements
- Litigation
- Mergers and acquisitions
- State/Federal beverage licensing and permitting
- Trademark protection
- Water rights

One of the most important things Stoel Rives brings to its partnerships with clients is a thorough understanding of business — your business, your industry, your way of getting the job done. That's why Stoel Rives is active in several winery and vineyard industry groups and why specific lawyers devote time to serving on boards, committees and task forces of these associations. Through continued involvement, Stoel Rives is getting to know your industry and your business better every day, focusing on the legal changes and challenges that affect you most.

Stoel Rives has more than 370 lawyers, 500 support professionals, and eight offices in five western states.

For more information, contact:
Stoel Rives, LLP
111 Sutter St., Ste. 700, San Francisco, CA 94104
tel: 415/617-8900 fax: 415/676-3000
website: www.stoelrives.com
Christopher J. Carr
tel: 415/617-8925
e-mail: cjcarr@stoel.com
900 SW 5th Avenue, Ste. 2600
Portland, OR 97204
tel: 503/224-3380; fax: 503/220-2480
Christopher R. Hermann
tel: 503/294-9236
e-mail: crhermann@stoel.com

PLEASE SEE STOEL RIVES AD, PAGE 23.

Lescure Engineers, Inc.

Lescure Engineers, Inc., founded in 1979, offers integrated professional services including project planning, land surveying, and civil engineering. Services provided for winery and vineyard development projects include:

- Use permit applications
- Certificates of compliance
- Subdivision and lot line adjustment
- Topographic surveying
- Boundary surveying
- Legal descriptions
- Site improvement plans
- Grading, drainage, and erosion control
- Retaining wall design
- Private driveway and bridge plans
- Water rights applications
- Reservoir and dam design
- Water supply and delivery systems
- Wastewater management systems

LESCURE ENGINEERS, INC

Lescure Engineers, Inc. has developed a reputation for innovative wastewater collection, treatment, and dispersal system engineering which avoids a "one-size-fits-all" approach. Lescure offers alternative solutions to arrive at a wastewater management system which best fits the client's site and winery operations.

For more information, contact:
Lescure Engineers, Inc.
4635 Old Redwood Hwy.
Santa Rosa, CA 95403
tel: 707/575-3427; fax: 707/542-2353
e-mail: le@lescure-engineers.com
website: www.lescure.biz

PLEASE SEE LESCURE ENGINEERS AD, PAGE 39.

Heritage Systems, Inc.

Heritage Systems, Inc. provides environmental products and services for regulatory compliance.

Regulatory-compliance products include: chemistry for pH adjustment and nutrient-addition, biological supplements, Peracetic Acid for environmentally-sound cleaning and sanitizing processes, and packaged wastewater treatment systems.

Heritage offers environmental compliance services by assisting in the operation, maintenance, and compliance reporting of wastewater ponds and mechanical treatment systems.

Heritage's patent-pending PondSentry™, a powerful aeration-control and data-acquisition product, can save clients thousands of dollars per year in electrical costs, without capitol expenditure. PondSentry™, installed and maintained as part of Heritage's pond-management service, consists of a control panel and sensor platform floated in a wastewater treatment pond. An ultrasonic level sensor level sensor is suspended over the pond for automatic freeboard measurement and environmental compliance.

Various pond-maintenance services are provided, including a technician visiting the site to clean and calibrate probes and analyzers and to download information from data loggers for evaluation. Heritage Systems generates your monthly and quarterly compliance reports saving additional time and money for the winery.

A customized delivery system enables Heritage access to locations outside or within your facility. Customized, self-contained storage and dispensing systems are supplied and maintained to ensure consistent and reliable reports.

For more information, contact:
Heritage Systems
Michael Long
2471 Solano Ave., Ste.141, Napa, CA 94558
tel: 707/258-0553; fax: 707/255-3151
e-mail: service@heritagesystemsinc.com
website: www.heritagesystemsinc.com

Joseph W. Ciatti Company, LLC

The Joseph W. Ciatti Company, LLC is the wine industry's oldest, largest, and most comprehensive grape and bulk wine brokerage in the U.S. and internationally. Annual sales are over 110 million gallons (416 million liters).

Many wine brokerage services include: grape contracts; grape processing contracts; complete negotiations of bulk wine purchasing and sales; tasting, blending, and finishing wines by on-staff enologists; objective information, including comprehensive long-term market analysis; evaluation of inventory quality and current market values; and locating unlabeled case goods or wine for private labeling.

The Ciatti Company has the most extensive and up-to-date product line of premium varietals; generic wines; grape and fruit concentrates; brandy and high proof from grape, citrus, and grain. Internationally, Ciatti can broker exports of U.S. wines to overseas markets and imports of foreign wines to California labels and wineries, including wines from Australia, Chile, France, Argentina, and other major wine growing regions including South Africa.

Joe Ciatti, John Ciatti, Greg Livengood, and John White specialize in premium coastal varietals and share responsibility for all California wineries. Chris Welch is responsible for ultra-premium wineries in California. Chris Braun, Daniel Murphy, and Dennis Schrapp cover international markets and wineries outside California. Glenn Proctor and Johnny Leonardo are responsible for brokering grapes and assist with California wineries. Andy Bivona and Greg Magill specialize in varietal juices and concentrates, beverage alcohol, and all natural grape colors.

For more information, contact:
Joseph W. Ciatti Company, LLC
1101 Fifth Ave. #170, San Rafael, CA 94901
tel: 415/458-5150; fax: 415/458-5160
e-mail: gayle@ciatti.com
website: www.ciatti.com

PLEASE SEE JOSEPH CIATTI CO. AD, PAGE 15.

eSkye Software, LLC

Founded by leaders in the consumer packaged-goods and distribution industries, eSkye is a leading provider of wines and spirits software and web-based solutions for the global beverage industry. eSkye software enables the world's leading wineries and brand owners to produce the best product possible by efficiently managing investment outlays, tracking all steps in production, ensuring compliance with the many statutory reporting requirements and efficiently connecting customers electronically. eSkye serves more than 100 wineries with its products and services.

eSkye software

Enterprise Edition originated from the WiPS product. Enterprise Edition (WiPS) now utilizes Quickstep, a Java-based GUI, thus enhancing the features and functionality of the Enterprise Edition product that currently runs on IBM iSeries application servers. Modules include: Grape Acquisition, Cost Accounting, Winemaking and Cellar Operations, Dry Goods, Work Order Create, Laboratory Analysis, Intended Use and Trial Blend, Barrel Management, Grape Payment and Grape Intake Planning and Receipt.

Blend Production is part of a product family that focuses on the needs of small to mid-size wineries. Built upon standard PC-based technologies, it's a complete grape-to-bottle solution that was built by the same people that created PC-Blend — one of the best selling wine production systems in the world. Other Blend products and modules include Sales & Distribution, Vineyard Management, Point of Sale, Wine Club, and Financials.

For more information, contact:
eSkye Software, LLC.
Bronwen Carlin
13716 Arnold Dr., PO Box 2109
Glen Ellen, CA 95442
tel: 707/996-9754; fax: 707/996-5509
e-mail: bcarlin@eskyesolutions.com

PLEASE SEE ESKYE SOFTWARE AD, PAGE 24.

ADI Systems, Inc.

ADI Systems, Inc. provides on-site wastewater treatment systems to wineries and industrial processors. Technologies range from the proprietary low-rate anaerobic ADI-BVF digester to the proprietary aerobic ADI-SBR (sequencing batch reactor), with a variety of technologies in between. The newest technology (available in the U.S. and Canada only) is the ADI-MBR (membrane biological reactor), incorporating Kubota flat-plate membranes.

ADI Systems Inc. prefers the design-build approach to carrying out projects. When there is a question of treatability, pilot studies are often carried out either at ADI's lab or on site. Every need is different, and each treatment train is designed and built according to the customer's unique need.

As one of the ADI group of companies, ADI Systems does projects under an ISO 9001:2000 quality management system. A sister company, ADI Limited, is fully registered, and ADI Systems utilizes ADI Limited's multi-disciplinary services in carrying out projects, and incorporates the ISO quality standard in its own day-to-day business.

Check the website for more details on the many services and products offered by ADI and the entire group of companies.

For more information, contact:
ADI Systems, Inc.
Connie Smith
1133 Regent Street, Ste. 300
Fredericton, NB E3B 3Z2 Canada
tel: 800/561-2831 (U.S. and Canada) or 506/452-7307
fax: 506/452-7308
e-mail: systems@adi.ca
website: www.adisystems.ca

PLEASE SEE ADI SYSTEMS, INC. AD, PAGE 57.

Akeena Solar

Improve your vineyard's sustainability — and cash flow — with a solar electric system. Solar power benefits the environment via electricity produced from a clean, renewable resource. Installing a solar system creates immediate, positive operations cash flow and publicity with sustainably-produced wine.

"We didn't realize that one major benefit of the solar electric system was the PR value. We've received calls from all over the U.S. complimenting us for putting in the solar system and asking how they can buy our wine! From an environmental viewpoint, the basic nature of solar power — plus the combination of incentives received from the State of California and Federal government, and from my viewpoint as a businessman, the estimated cost savings over the life of the system — made the decision a 'no brainer.'" Jeffery Patterson, owner, Mount Eden Vineyard, Saratoga, CA.

25 kilowatt Case Study

Total installation cost	$189,094
7.5% California tax credit	–$7,786
10% Federal tax credit	–$9,603
Renewable buydown rebate	– 85,282
Net Cost	$ 86,424

Photovoltaic System Financial Benefits

Monthly loan payment (after tax)	$335
Monthly electric savings	$560
Monthly positive cash flow	$225
Tax-free rate of return	18.6%
Total Energy Savings (30 years)	$446,364

Akeena Solar

Akeena provides complete turnkey vineyard solar installations. Call today for a free site survey and financial report. Rebate funding and tax credits are limited!

For more information, contact:
Akeena Solar
605 University Ave., Los Gatos, CA 95032
tel: 408/395-7774; fax: 408/395-7979
e-mail: info@akeena.net
website: www.akeena.net

Scion Advisors

Scion Advisors, a professional advisory firm, is dedicated to helping **family-owned** wine businesses prosper in an increasingly crowded and complex marketplace by improving management and leadership practices.

Scion works from an integrated perspective of the family business enterprise. Scion seeks to understand your unique challenges, quickly propose actionable solutions, and work on execution strategies.

Scion has assembled a team of experienced executives who combine broad business expertise from many industries with an understanding of the wine industry. Scion works with business owners/clients to produce succession and exit plans; develop strategic and financial plans; assess, develop, and hire business leadership; implement planning and career development processes. Scion offers solutions to wine businesses facing major transitions or significant issues.

Key issues of Scion clients include greater profitability; a new company; new leadership; diminished margins; narrowing distribution channels; an aging brand; overtaxed and unfocused executive leadership; succession uncertainties.

Deborah Steinthal, Motto Kryla Fisher-veteran management consultant, is the founding partner and has worked with dozens of wine family business owners and chief executives to clarify goals and improve company performance.

For more information, contact:
Scion Advisors
3535 Hagen Rd., Napa, CA 94558
tel: 707/258-9130; fax: 707/258-9132
e-mail: Deborah@scionadvisors.com
website: www.scionadvisors.com

Hall & Bartley

Hall & Bartley is a full service architectural firm specializing in the design and planning of wineries. Pictured is the recently completed expansion of Hanzell Vineyards & Winery (Sonoma, CA). Hall & Bartley's unique talents go beyond traditional architecture in their ability to understand and analyze the functional requirements of a modern winemaking facility.

With 18 years experience, they are responsible for the design and planning of many California premier wineries including: Flowers Winery, Marimar Torres Estate, Geyser Peak Winery, Chateau St. Jean, Kendall-Jackson's La Crema facility, Atlas Peak Vineyards, Meridian Vineyards, and St. Francis Winery.

Through careful consideration and attention to the desires of their clients, Hall & Bartley remains a leading winery architect in the U.S..

Current projects include Sbragia Winery, Lions Peak Vineyards, DuMol Winery, and Merlo Winery.

Hall & Bartley's services include feasibility studies, master planning, process sizing and flow analysis, architectural design, construction documents preparation, government permitting assistance, construction bidding assistance, and construction administration for both new and existing winery projects.

For more information, contact:
Hall & Bartley
4701 Old Redwood Hwy., Ste. 2B
Santa Rosa, CA 95403
tel: 707/544-1642; fax: 707/544-1646

Castoro Bottling Company

Since 1989, Castoro Bottling has served wineries throughout California with a fleet of high-tech mobile bottling lines. The demand for Castoro Bottling's timely, professional, and knowledgeable service has triggered the bottling of over 48 million bottles of wine with natural cork, synthetic corks, or **screwcaps**.

Castoro Bottling offers three technologically-advanced mobile bottling lines that arrive on your schedule to serve all your bottling needs. Castoro Bottling can bottle up to 2,500 cases per day, serving any size winery. A number of custom services are offered, including labeling and packaging consultation. Recognizing the need for wineries to offer alternative closures, Castoro Bottling has outfitted two of the bottling lines with **screwcap** capabilities.

CASTORO BOTTLING Co.
CBC
FILLING YOUR NEEDS

"Our investment in the best equipment and the best people to run that equipment is what sets Castoro Bottling apart," says Niels Udsen. "We anticipate the needs of a winery better than any other bottler simply because I have owned and operated a successful winery for over 20 years. Castoro Bottling is a partner who knows and understands your business."

Call today, or visit www.castorobottling.com for more information.

For more information, contact:
Castoro Bottling Company
Niels Udsen
PO Box 954, Templeton, CA 93465
tel: 805/467-2002; fax: 805/467-2004
e-mail: Niels@castorobottling.com

Vinquiry, Inc.

Vinquiry provides analytical services, winemaking products, sensory services, and enological consulting to the wine industry. In order to make these components more available, Vinquiry has three locations in Sonoma County, Napa County, and the Central Coast to offer personalized and expert service for every customer.

VINQUIRY

Vinquiry is always expanding the range of services available to winemakers. The new Chloroanisole Panel is a test for wine or corks to detect the three anisole compounds known to cause off-aromas.

Along with the newer tests, Vinquiry continuously offers basic wine analysis to assist winemakers in their goals. Vinquiry's expertise in microbiology is the best available in the industry, including culturing and identifying yeasts and bacteria, evaluating fermentation populations, and assessing wines prior to bottling.

Vinquiry enological and sensory consultants are available for any situations that may arise. Consultants can offer second opinions to find the best solutions to optimize wine quality or avoid costly problems.

Please call 707/838-6312 or visit www.vinquiry.com for up-to-date information available from Vinquiry.

For more information, contact:
Vinquiry, Inc.
7795 Bell Rd., Windsor, CA 95492
tel: 707/838-6312; fax: 707/838-1765
e-mail: info@vinquiry.com
website: www.vinquiry.com

Journey Bottling Company, LLC

Journey Bottling Company, LLC takes pride in providing high quality wine bottling services year-round at reasonable prices to wine producers. Efficiency is emphasized to reduce costs and waste, and to improve quality in every step of the process. Journey offers an orderly hygienic environment in which to bottle your product.

Journey Bottling Company offers two state-of-the-art mobile bottling lines that travel to your facility. Each of the two lines requires approximately four hours set up. Both lines produce approximately 2,200 cases per day. Pressure-sensitive or wet glue labeling is available. Tin, polylaminate, or PVC capsules can be applied. In addition, wax dots can be applied to cork tops.

Journey
BOTTLING CO.

Each line is staffed with an experienced supervisor and lead person, who can assist you in all aspects of your bottling project. Journey Bottling Company assesses the project cost on a sliding scale based on volume. Our staff is available for consultation.

These customers have enjoyed the quality services of Journey Bottling Company:

- Collier Falls
- Dutch Bill Creek Winery
- Kendall-Jackson Wine Estates
- Cardinale Winery
- La Crema Winery

For more information, contact:
Journey Bottling Company, LLC
1190 Kittyhawk Blvd., Santa Rosa, CA 95403
tel: 707/836-2002; fax: 707/838-1181
e-mail: mgribben@kjmail.com

Summit Engineering, Inc.

With over 250 successfully completed winery projects across North America, Summit Engineering has the knowledge and expertise to design a facility that will fit your current and future needs. The firm's extensive background and breadth of design services allows it to efficiently complete your project while creating savings in time and cost without sacrificing the quality you deserve. Summit has the in-house capabilities and industry relationships to respond to practically all project design needs from conception to completion.

With Summit, you hire one firm and receive the following services:

- Master Planning,
- Permitting Assistance,
- Sitework Design,
- Structural Design,
- Sanitary and Process Wastewater Design,
- Electrical engineering services from Summit's suite16 Electrical Engineering division.

SUMMIT

The quality of Summit's design directly influences the much greater project-construction cost. In-depth expertise, broad experience, and an overall-project orientation combine to provide the highest value for your design dollar.

For more information, contact:
Summit Engineering, Inc.
Jane Rogan
463 Aviation Blvd. #200
Santa Rosa, CA 95403
tel: 707/527-0775; fax: 707/527-0212

PLEASE SEE SUMMIT ENGINEERING AD, PAGE 17.

Compliance Service of America

Compliance Service of America offers the following services to the alcoholic beverage industry: TTB permits; full-service state and local alcoholic beverage licensing for producers, wholesalers, and retailers nationwide; compliance consulting; specialized advice for start-ups, mergers, acquisitions, and alternating proprietors; trademarks, and trade names; and petitions for new or amended viticultural areas.

Any grapegrower competing for winery attention, and any winery competing for shelf space, is interested in using viticultural area designations to the greatest advantage. CSA has substantial experience with American viticultural areas (AVAs). The company has written petitions to establish the approved Sonoma Coast, Benmore Valley, San Francisco Bay, Wild Horse Valley, and River Junction (San Joaquin County, CA) viticultural areas. Petitions for Red Hills (Lake County), and Bennett Valley viticultural areas were approved in 2004. CSA has also successfully amended the Central Coast and Alexander Valley viticultural areas.

Would it help your marketing to establish a new AVA or to amend the boundaries of an existing one? CSA can either assist, or manage the whole process for you.

For more information, contact:
Compliance Service of America
Dyana Nedra, Alex Heckathorn, Sara Schorske
PO Box 43, Gardiner, OR 97441
tel: 800/400-1353; fax: 541/271-1609
e-mail: csa@csa-compliance.com
website: www.csa-compliance.com

American AgCredit

American AgCredit has meant "money for agriculture" for 85 years and, in that time, has grown to be the nation's fifth largest farm credit association by focusing on the unique needs and cycles of growers and producers.

Headquartered in the heart of California wine country, American AgCredit has provided wine industry financing for more than 30 years, funding in excess of one billion dollars in vineyard and winery loans. An active participant in the wine community, American AgCredit is a member and/or supporter of Sonoma County Wineries Association, Napa Valley Vintners Association, California Association of Wine Grape Growers, Wine Institute, Wine Market Council, American Vineyard Grape Exposition, and the Unified Wine & Grape Symposium.

Through good vintages and bad, American AgCredit is there to finance:

- Real estate loans
- Vineyard development
- Winery construction
- Facilities improvement
- Equipment, barrel, and tank leasing
- Operating lines of credit for crops and wine inventory

In an industry defined by variables, American AgCredit is a constant you can depend on for customized financing, flexible terms, and competitive rates for your winery or vineyard needs.

For more information, contact:
American AgCredit
200 Concourse Blvd., Santa Rosa, CA 95403
tel: 707/545-1200; fax 707/545-9400
e-mail: tlindley@agloan.com
website: www.agloan.com

PLEASE SEE AMERICAN AGCREDIT AD, PAGE 6.

Paige Poulos Communications

Paige Poulos Communications (PPC) is one of the wine industry's leading public relations agencies. Accomplished publicists, the agency's senior staff are also creative and strategic thinkers. PPC has a proven track record in the development of special events, tastings, seminars, and educational programs for presentation at sales meetings, festivals, and symposia of any size; on-site or in-market. The agency is also proficient in the development of relationship marketing programs to build brand loyalty.

PPC keeps its outreach fresh and effective by embracing new trends and technologies. Most recently, the agency launched NextInWine.com and the Alternative Wine Packaging Alliance.

Committed to excellence and efficiency, PPC combines the personal service and immediate response of a small agency with a network of specialists around the world. This ensures that every client gets the best marketing and promotion talent available, without expensive overhead for services needed on an occasional basis. PPC takes pride in providing services specifically tailored to each client's unique situation.

Capitalizing on a comprehensive range of professional services, PPC has built brands and enhanced the reputations of a diversity of companies in the wine, spirits, food and hospitality industries, and related businesses for 15 years.

For more information, contact:
Paige Poulos Communications, Inc.
Paige M. Poulos, APR, President/Founder; **John S. Woolley**, Jr. Vice President; **Charles Purdom**, Sr. Director Client Services; **Joel Quigley**, Sr. Director Creative Services
64 Railroad Ave., Pt. Richmond, CA 94801
tel: 800/497-3376; fax: 510/970-9778
e-mail: paige@paigepoulos.com or john@paigepoulos.com
website: www.paige poulos.com

PLEASE SEE PAIGE POULOS COMMUNICATIONS AD, PAGE 43.

Modular Information Systems

Modular Information Systems is a leader in technology solutions for innovative winery management.

Vintners ADVANTAGE

Vintners Advantage (VA) is a comprehensive, fully integrated grouping of winery software modules. Each winery has a unique way of doing business and VA menus are easily configured to only display functions required to complete a given task. The heart of the system is Vineyard and Winery Operations, which tightly integrates with modules featuring financial management, bottling and manufacturing, tasting room with point of sale, wine club, grower contracts and payments, sales contracts, sales and distribution, and brandy and spirits.

MIS Modular Information Systems

Just My Wine is an innovative Wine Club Management solution providing functionality not found in other systems. Members have complete access to their records via a web portal with the winery and the winery has complete, up-to-date member data. Wine Club personnel may easily update a web-viewable, winery-specific, social events calendar; product information may also be changed, and, coming soon, wine for sale over the web. Automatic credit card processing and UPS shipping interface are standard Just My Wine features.

For more information, contact:
Modular Information Systems
Lisa Corbett
2303 Camino Ramon, Ste. 210
San Ramon, CA 94583-1389
tel: 866/647-3757 ext. 204
e-mail: sales@miscorp.com
website: www.miscorp.com

PLEASE SEE MODULAR INFORMATION SYSTEMS AD, PAGE 60.

BAR Architects

With 25 years of specialized experience in winery planning and design throughout California, BAR Architects brings expert knowledge of the latest winemaking processes, and associated facility requirements, to each project. Projects have ranged in scope and size, including wine production and storage facilities, visitor centers, tasting rooms, reception areas, art galleries, conference facilities, retail operations, and design of vineyards, caves, and winery tour sequence.

BAR ARCHITECTS

The firm is currently working on a new winery for Merryvale Vineyards (Napa, CA); a new hospitality center and renovation of the tasting and tour facilities for Gloria Ferrer Champagne Cellars (Sonoma, CA); and the planning and design of the Sugar Mill Winery (Clarksburg, CA). Additional projects include: expansion and renovation of Robert Mondavi Winery — To Kolan (Oakville, CA); Mumm Napa Winery & Visitor Center (Rutherford, CA); Silverado Vineyards (Napa, CA); Jordan Winery (Healdsburg, CA); Stonestreet (Healdsburg, CA) and Cardinale Wineries (Napa Valley, CA) for Kendall-Jackson; Staglin Winery and Caves (Rutherford, CA); and Robert Young Winery (Geyserville, CA).

BAR's quality work is award-winning, timeless, and appreciated by its many repeat clients. BAR Architects was recognized by the AIA California Council as Firm of the Year 2000, one of the highest honors that can be bestowed upon an architecture firm.

For more information, contact:
BAR Architects
Jeff Goodwin, AIA
1660 Bush St., San Francisco, CA 94109
tel: 415/441-4771; fax: 415/536-2323
website: www.bararch.com

PLEASE SEE BAR ARCHITECTS AD, PAGE 35.

Brotemarkle, Davis & Co., LLP

Brotemarkle, Davis & Co. has one goal, *to create raving fans.*

What keeps you up at night? Could it be..."How are we going to meet our sales goals?" or perhaps "Competition ... it's not like the good old days," or "If I only had more time." No matter what is causing your stress, it does not have to continue.

Brotemarkle, Davis & Co. LLP
ACCOUNTANTS & ADVISORS

Brotemarkle, Davis & Co. has developed a performance-based management program to help you determine your Key Performance Indicators (KPIs).

Every business has KPIs. KPIs are those items that are the main drivers of your success. Get your KPIs right and your goals become achievable. Brotemarkle, Davis & Co. will help your team determine and measure your KPIs. You can keep your existing CPA firm. They probably do a good job of measuring the past. Brotemarkle, Davis & Co. can enhance your success and change your future.

Please call Craig Underhill or Dave Brotemarkle, or visit the firm's website at www.napavalleycpas.com for more information. This program does make a difference.

For more information, contact:
Brotemarkle, Davis & Co., LLP
Accountants and Advisors
1001 Adams St., St. Helena, CA 94574
tel: 707/963-4466; fax: 707/963-4712
e-mail: Dave@Napavalleycpas.com
Craig@Napavalleycpas.com
website: www.napavalleycpas.com

Premier Power

Is your winery or vineyard suffering due to high electric bills? You can slash your electric bill to $11.24 by installing a solar power system. Premier Power solar systems convert sunlight into electricity and create enough energy to power your facility on a daily basis.

For a limited time, the state of California is offering incentives up to 50% on the cost of a solar electric system for businesses. In addition to these savings, the federal government offers a 10% federal tax credit, a 7.5% state tax credit, and an accelerated depreciation of five years for the total cost of the system. Solar energy will never be more affordable!

Premier Power

Your Solar Electricity Specialists

Premier Power can provide your winery or vineyard with a turnkey solar power system including a site survey, all building permits, installation of the system, and filing of all paperwork to obtain your rebates and interconnect to the grid. Stop paying the electric company and invest in a solar electric system to reduce operating costs, improve your bottom line, and help the environment. It's a no-brainer!

For more information, contact:
Premier Power Renewable Energy
4961 Windplay Dr., Ste. 100
El Dorado Hills, CA 95762
tel: 877/939-0400
e-mail: info@premierpower.com
website: www.premierpower.com

PLEASE SEE PREMIER POWER AD, PAGE 9.

ETS Laboratories

ETS is one of the most advanced wine analysis laboratories in the world. Located in St. Helena — Napa Valley, it offers California wineries and suppliers access to the most modern and technically demanding analytical methods available in the wine industry.

ETS employs many sophisticated technologies to provide the highest quality data in the shortest time possible. Instrumentation capabilities include: gas chromatography with various selective detectors (GC), gas chromatography/mass spectroscopy (GC/MS), liquid chromatography (HPLC), flame and graphite furnace atomic absorption, capillary electrophoresis, and multiple automated chemistry analyzers. All are available in-house with a variety of configurations to provide a complete range of analytical capabilities.

ETS is the only independent wine laboratory accredited by the American Association for Laboratory Accreditation to ISO 17025 quality standards.

ETS continues to meet and exceed your analytical needs by providing the highest standards in analytical data, quality assurance, customer service, and client confidentiality. ETS offers "pick–up" services and a night drop box for samples. Most test results are available within 24 hours.

For more information, contact:
E T S Laboratories (CA)
899 Adams St., Ste. A, St. Helena, CA 94574
tel: 707/963-4806; fax: 707/963-1054
E T S Laboratories (OR)
1819 NE Baker St., McMinnville, OR 97128
tel: 503/472-5149; fax: 503/217-0668
e-mail: info@etslabs.com
website: www.etslabs.com

PLEASE SEE E T S LABORATORIES AD, PAGE 83.

Hoyt Shepston, Inc.

Hoyt Shepston provides the beverage industry with decades of international transportation experience for both the import and export of beverages and related beverage industry articles. Established in 1850, Hoyt Shepston is one of the nation's, and California's, oldest custom house brokers and freight forwarder/OTIs offering a full range of international transportation-related services.

Whether shipping one case or a full container by air or sea, Hoyt Shepston's staff of professionals and worldwide network of agents moves cargo with little or no effort by the client, in increments or the total transportation concept, integrating all aspects of international trade between warehouses.

1850 - 2000
HOYT SHEPSTON
SESQUICENTENNIAL

Hoyt Shepston has resources and expertise to bring products to and from its various international supply points in a seamless transaction. Hoyt Shepston specialists offer all phases of documentation services, insurance, label approvals, TTB, drawback procedures, duty and quota requirements, letters of credit and more, all backed by 150-plus years of experience.

Hoyt Shepston's headquarters and warehouse are located in South San Francisco with a branch office/marine division located on the Embarcadero in San Francisco, and a worldwide web of national and international agents.

For more information, contact:
Hoyt Shepston, Inc.
Fred Hosking
700 A. Dubuque Ave.
S. San Francisco, CA 94080
tel: 800/675-HOYT (4698), ext. 311
fax: 650/634-8063
e-mail: fred@hoyt-shepston.com

PLEASE SEE HOYT SHEPSTON, INC. AD, PAGE 58.

Osborn Design Group

With over 30 years of architectural design experience, award-winning Osborn Design Group designs wineries that meet all their client's needs, whether it is aesthetics, budget, or schedule. The firm has designed wineries that are economical to build, energy-efficient, and facilitate the winemaking process. The firm specializes in all phases of winery design including feasibility studies, master planning, use permits, architectural design, and project management.

Recently, Osborn Design Group completed the Montemaggiore Winery and Olive Press (Healdsburg, CA) a 5,000-sf barn conversion. The design included high clerestory windows to bring in natural light and ventilation and a new insulated exterior shell to reduce mechanical cost and keep the interior temperature cool. Special epoxy coatings were added to the steel frame to reduce the affects of the moist interior climate. No wood was used on the interior portions in order to limit potential TCA contamination.

Completed projects of the Osborn Design Group include: Valley of the Moon Winery, Sebastiani Winery, Clos du Bois Winery, Chateau Felice Winery, and Paloma Winery, all in Northern California. All of these projects have one thing in common: Meeting the client's needs. At Osborn Design Group, establishing a good relationship with the client is just as important as creating a beautiful and well-designed winery.

For more information, contact:
Osborn Design Group
Susan Ryan
822 College Ave., Ste. D
Santa Rosa, CA 95404
tel: 707/542-3770
e-mail: susan@osborndesigngroup.com
website: www.osborndesigngroup.com

PLEASE SEE OSBORN DESIGN GROUP AD, PAGE 50.

The Personnel Perspective

Management of your winery's human resources functions can be challenging, exciting, frustrating, and overwhelming — all in the same day. Human resources management is one of the most constantly changing fields.

THE PERSONNEL PERSPECTIVE

The Personnel Perspective is a leading provider of complete human resource management and recruitment solutions to the wine industry in Northern California and Napa Valley. A team of experts offer a complete range of solutions in Human Resource Consulting, Compliance, Compensation, Recruiting, and Training.

Senior human resource generalists, executive search and recruitment specialists, compensation analysts, and management training professionals at The Personnel Perspective provide diverse experience, knowledge, training, and insight. Clients benefit from being able to take advantage of both individual and collaborative team expertise.

The Personnel Perspective is committed and responsive to winery clients, ensuring results to help you, the client, at every stage of your development. The diversity, flexibility, and depth of services offered allow The Personnel Perspective to partner with you to tailor solutions to meet your specific human resource and organization management needs, recommend specific actions, and help you with implementation.

For more information, contact:
The Personnel Perspective
Carolyn Silvestri, Owner
Jeannette Feldman, Owner
575 W. College Ave., Ste. 101A
Santa Rosa, CA 95401
tel: 707/576-7653; fax: 707/576-8190
website: www.personnelperspective.com

Axiom Engineers, Inc.

Axiom Engineers℠ is a California Central Coast and Napa Valley consulting engineering firm specializing in winery and commercial building design. Axiom Engineers is small enough to care, yet large enough to serve your most sophisticated winery engineering and design needs from concept to completion.

Axiom Napa and Monterey project managers, engineers, and designers have a combined experience of over 80 successful projects and 100 years of winery operation, design, and construction experience.

Winery projects ranging from 2,000-case boutique wineries to 30,000-ton custom crush facilities have been successfully completed.

AXIOM ENGINEERS℠

- Gentle fruit handling systems
- Fermentation and barrel storage
- Wastewater permitting and design
- Water systems permitting and design
- Process piping systems
- Refrigeration and controls
- Cogeneration and solar energy
- Receiving and crush pads
- HVAC and plumbing
- Hospitality
- Cave ventilation and radiant cooling
- Fire protection and smoke control
- LEED and green building

Axiom truly understands that one size or style **does not** fit all. Axiom's engineers use their knowledge and experience to work with your team to determine what is right for your wine style and your business model.

For more information, contact:
Axiom Engineers, Inc.
Raymond Cole, President
George DePonte, Project Manager
1712 Jefferson St., Napa, CA 94559-1703
tel: 831/649-8000 (Monterey office)
tel: 707/251-1468 (Napa office)
e-mail: rayc@axiomengineers.com
website: www.axiomengineers.com

PLEASE SEE AXIOM ENGINEERS, INC. AD, PAGE 22.

O'donnell lane, LLC

O'donnell lane, LLC is a full-service lifestyle-focused company specializing in strategic planning, marketing, and communications for the wine industry and professional trade associations as well as event planning and interior design.

The current client portfolio includes both wine and non-wine brands and organizations on a long-term and a project basis. While the company is based in Sonoma County, CA, clients are served from the U.S. Pacific Northwest, throughout California and around the world. Steve Burns and Josh Heiser, the principals of O'donnell lane, LLC invite you to contact them to enhance your current business opportunities and your present or future living environments.

For more information, contact:
O'donnell lane, LLC
PO Box 2105, Glen Ellen, CA 95442
tel: 707/938-9703; fax: 707/938-9706
website: www.odonnell-lane.com

Fred Lyon Pictures

Get the photography you need, that will tell your story at its best.

Fred Lyon is the wine industry's own photographer. He relentlessly prowls vineyards and wineries around the world. You've seen his pictures in every magazine and wine book.

For wineries and wine marketers, Lyon creates innovative conceptual images for persuasive advertising, press-use, and brochures. These are high-energy images, from an experienced photographer who is friendly, rapid, and reliable.

Be sure to visit his website. Plus a fresh new source of available pictures, www.winefoodandtravel.com

For more information, contact:
Fred Lyon Pictures
3609 Buchanan St., San Francisco, CA 94123
tel: 415/922-5100; fax 415/922-5762
e-mail: fred@fredlyon.com
website: www.fredlyon.com,
www.winefoodandtravel.com

Hinman & carmichael, LLP

The law firm of Hinman & Carmichael, established in 1991, practices exclusively in the field of alcoholic-beverage law, representing wineries and winegrowers of all sizes throughout California and the U.S.

The firm's attorneys have counseled clients in a vast array of issues and are experienced in all facets of alcoholic beverage law including:

- Licensing,
- ABC and TTB proceedings,
- Business transactions (distribution agreements, purchase contracts, corporate formation, documents, etc.),
- Trade practices,
- Rebates and promotions,
- Trademark registration.

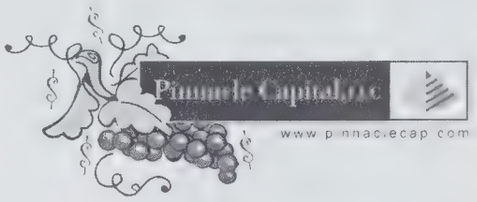
HINMAN & CARMICHAEL LLP

Hinman & Carmichael has been very active in the direct shipping issue since its early days and continues to work zealously to advance wineries' ability to market products.

For more information, contact:
Hinman & Carmichael, LLP
John Hinman, Lynne Carmichael,
Beth Aboulafia, Barry Strike
260 California St., Ste. 1001
San Francisco, CA 94111
tel: 415/362-1215; fax: 415/362-1494
e-mail: jhinman@beveragelaw.com
carmichael@beveragelaw.com
aboulafia@beveragelaw.com
bstrike@beveragelaw.com
website: www.beveragelaw.com

Pinnacle Capital, LLC

Pinnacle Capital, LLC, is a Full Service equipment financing company serving all 50 states. What does Full Service mean? Full Service means just that; from credit processing and funding to billing and collecting, Pinnacle Capital puts over 100 years of combined financing experience to work for you.



Pinnacle Capital understands the vineyard and winery industry, from boutique to large-scale production wineries, and has a program designed to accommodate your unique cash-flow needs:

- In-house financing
- Competitive pricing
- Quick approvals
- Flexible payment plans
- Customer service

Visit the www.pinnaclecap.com website, and see how Pinnacle Capital can help your cash flow grow.

Pinnacle Customers know they are more than just a number; they are the number one priority.

Pinnacle Capital, LLC
Diana Hodson
159 S. Worthen, Ste. 300
Wenatchee, WA 98801
tel: 888/223-2600; fax: 888/223-3600
e-mail: dhodson@pinnaclecap.com

PLEASE SEE PINNACLE CAPITOL, LLC AD, PAGE 34.

Riechers Spence Associates, Consulting Civil Engineers

Riechers Spence Associates (RSA) offers complete winery consultant services beginning with your vision and ending in the completion of your winery. Recent California projects include the award-winning Quintessa Winery, Hess Collection Winery, Deerfield Ranch Winery, 7 & 8 Winery, Mayo Family Winery, Guenoc Winery Inc., O'Shaughnessy Estate Winery, and Morley Winery.

RSA's team-design approach saves you money and time, while providing the ultimate in master planning, site design, wastewater solutions, structural design, and permit processing. RSA's specialized teams give you personal and responsive service throughout the life of your project. Please call RSA key personnel: Peter Riechers P.E. (president), Alan Spence P.E. (vice president), Hugh Linn P.E., Hubi Schrage P.E., and Chris Tibbits P.E. to find out why Riechers Spence & Associates has provided a full service spectrum of engineering services to some of the world's greatest wineries for more than 20 years.

- Land planning
- Feasibility studies
- Use permit applications
- County approval processing
- Initial site surveying
- Site engineering
- Structural engineering
- Wastewater systems
- Roadway and utility design
- Vineyard development
- Erosion control design
- Construction observation

For more information, contact:
Riechers Spence Associates, Consulting Civil Engineers
1541 Third St., Napa, CA 94559
tel: 707/252-3301; fax: 707/252-4966
818 Mendocino Ave., Santa Rosa, CA 95401
tel: 707/573-1872; fax: 707/573-1953
website: www.rsacivil.com

PLEASE SEE RIECHERS SPENCE ASSOCIATES AD, PAGE 30.

Wines Central, LLC

Wines Central, LLC is a full-service wine storage and distribution warehouse strategically located on Mare Island near Highway 37 in Vallejo, CA, providing wine delivery trucks easy connections to Highway 101, 80, and other vital thoroughfares quickly linking regional wineries to the U.S. and the world. Wine Central's unique 240,000 square foot warehouse's concrete walls, massive rounded arches, solid wooden posts, and indoor railroad track that remains in full operation, all provide viewers with powerful reminders of the buildings' pure strength.

The facility has a capacity of 1.2 million cases on the ground floor alone. In addition, multiple mezzanine levels located on the west side hold vintage library stock and private wine collections in private, gated, and secured bays.

Services are provided with exceptional care on an individual need basis at a competitive rate.

Sensory climate controls measures guarantee that bottles will rest comfortably at all times. Safety is provided by on-site fire and security systems mixed with the extra bonus of Mare Island's own rolling security and guarded main entrances.

For more information, contact:
Wines Central, LLC
Debbie Polverino
710 L St., Bldg. 627, Mare Island
Vallejo, CA 94592
tel: 707/551-7000
e-mail: Debbie@winescentral.com
website: www.winescentral.com

PLEASE SEE WINES CENTRAL, LLC AD, PAGE 19.

Government Liaison Services, Inc.

Government Liaison Services (GLS) was founded in Washington, D.C. in 1957 to provide businesses with access to Federal Government offices and the vast amount of information available there from.

Today, GLS has a large staff of experts trained in various areas including intellectual-property research and food and beverage labeling and compliance. All associates are college graduates whose average experience exceeds 10 years.

GLS has obtained TTB (formerly BATF) label approvals along with pursuing rulings on formula submissions, lab analysis results, advertising, and many other TTB matters for thousands of clients, including wineries, law firms, sole practitioners, Fortune 500 companies, and smaller-sized businesses throughout the U.S.

GLS also specializes in performing trademark, patent, and copyright search services and is the only major trademark search firm that routinely searches both a computerized database of Federal trademark records and records from the U.S. Patent and Trademark Office's library, including all "24-hour box" records.

The GLS standard turnaround time for trademark searches is 48 hours. The firm's location in Arlington, VA allows consultation and guidance from U.S. Patent and Trademark Office officials first-hand.

For more information, contact:
Government Liaison Services, Inc.
200 N. Glebe Rd., Ste. 321
Arlington, VA 22203
tel: 800/642-6564, or
703/524-8200 outside U.S.
fax: 703/525-8451
website: www.trademarkinfo.com

PLEASE SEE GOVERNMENT LIAISON SERVICES' AD, PAGE 32.

Lodi Winegrape Commission

Nestled between the San Francisco Bay and the Sierra Nevada mountains is the Lodi wine region, a breath of fresh air in the world of California wine. Lodi enjoys a classic Mediterranean climate perfect for creating fruit-forward wines that are winning over consumers worldwide.

Lodi's star is rising on the Northern California wine scene. More Cabernet Sauvignon, Merlot, Chardonnay, and Sauvignon Blanc are grown in Lodi than in any other region. The deep, sandy, clay loam soil is especially great for growing Zinfandel. Remarkably, some of Lodi's "old vine" Zinfandels date back to the late 1800s!

Lodi growers have created the Lodi Wine & Visitor Center, where seasoned wine professionals and casual enthusiasts alike discover the broad range of full-flavored wines Lodi has to offer. Over 150 wines are available for tasting and sale at the center. Visitors can also revel in the many educational displays and interactive exhibits before continuing their Lodi winetasting adventure at over 40 local wineries.

Due to its convenient location and special event capabilities, the Lodi Wine & Visitor Center is happy to host wine industry events.

For more information, contact:
Lodi Winegrape Commission
tel: 209/367-4727

Kennedy/Jenks Consultants

Kennedy/Jenks Consultants provides consulting engineering services to the wine industry. The company specializes in planning, design, and construction management for facility improvements and expansions; water supply; water reuse/recycling; and wastewater treatment and disposal systems.

Kennedy/Jenks' approach is based on a thorough understanding of current regulatory constraints and trends that can have a significant impact on winery activities. Leveraging experience gained in more than 40 years of designing facilities for both large and small wine producers in California, Kennedy/Jenks can identify the most favorable, cost-effective alternatives to meet the needs of your winery.

Kennedy/Jenks Consultants
Engineers & Scientists

At the request of the Wine Institute, Kennedy/Jenks has now completed the second year of a two-year research project to determine the best practices for wastewater management via land application. The company's recommendations are being used to help shape California's regulatory policy on acceptable land-application techniques.

Kennedy/Jenks offers a range of services including:

- Facility planning, design, and construction management,
- Water quality and supply,
- Wastewater recycling/reuse,
- Wastewater treatment and disposal,
- Regulatory-compliance support,
- Solid-waste disposal,
- Stormwater management.

Kennedy/Jenks' goal is to provide lasting solutions that integrate smoothly with your winery operations, address regulatory concerns, and minimize startup and operational costs.

For more information, contact:
Kennedy/Jenks Consultants
Bob Chrobak, Vice President
tel: 415/243-2524; fax 415/896-0999

Wine Country Real Estate

Wine Country Real Estate is a full-service real estate brokerage specializing in wine country properties including vineyards and estates in Sonoma, Napa, and Mendocino Counties.

Owner and broker Karen Kenny has been one of the area's top producing realtors since 1977. She draws upon her background in viticulture, advertising, and marketing to bring a unique perspective to her work in real estate.

As her business has grown, Kenny has increased her office staff to seven experienced professionals (including herself). Carol Lexa, Jeffrey Anne Jones, Rick Ruthnick, Tamra Larson Furlani, Rena Harold, and Joy Emry are sales associates.

Kenny is a successful investor, developer, and winegrape grower. She holds a degree in viticulture from Santa Rosa Junior College. Her professional career includes experience in advertising, publishing, and film production. She has been a member of many professional organizations including the North Coast Grape Growers Association, the Sonoma County Grape Growers Association, and the Russian River Valley Winegrowers.

Kenny has an ongoing record of success because she focuses on her client's individual needs and tailors her approach to the special details of each situation.

For more information, contact:
Wine Country Real Estate
Karen Kenny
421 Healdsburg Ave., Healdsburg, CA 95448
tel: 707/433-2700; fax: 707/433-2052
e-mail: karenkenny@winecountryre.com
website: www.winecountryre.com or
http://rereader.com/winecountryre

PLEASE SEE WINE COUNTRY REAL ESTATE AD, PAGE 46.

Dal Poggetto & Company LLP, CPAs

Dal Poggetto & Company LLP specializes in accounting, tax, and consulting services for privately-held businesses and their owners, with a particular emphasis in the wine industry. The firm's partners have been accountants and consultants since 1975 and have worked with companies of all sizes, from those with annual revenues under $50,000 to those with more than $500 million in annual sales.

The firm's services include profit-improvement studies; strategic planning; financial modeling; transaction consulting for mergers, acquisitions, and divestitures; tax strategies and business planning; as well as traditional services, such as auditing and accounting, tax planning and preparation, and accounting systems development and consulting.

The staff at Dal Poggetto & Company LLP have extensive wine industry experience and are frequently able to make cost and tax savings recommendations to clients. They have an excellent reputation for clear communication skills, technical abilities, and responsiveness to clients.

The high quality of the firm's practice is maintained by a program of formal technical training for staff that greatly exceeds state licensure requirements and the programs of most other accounting firms. The most current technologies are employed to deliver client service in an efficient and cost-effective manner.

For excellent service at a competitive cost, provided by experienced professionals with broad consulting skills tailored to the needs of the wine industry, contact Dal Poggetto & Company LLP.

For more information, contact:
Dal Poggetto & Company LLP, CPAs
Jon P. Dal Poggetto, CPA
149 Stony Circle, Ste. 100
Santa Rosa, CA 95401
tel: 707/545-3311; fax: 707/525-3999
e-mail: info@dalpoggetto.com
website: www.dalpoggetto.com

Craig Root & Associates — Tasting Room Consulting

Craig Root & Associates offers cost-effective opportunities to increase profits and enhance the visitor experience in your visitor center. Also, an entertaining and informative visit to a visitor center stays in the consumer's mind long after more expensive advertising has faded.

The company's partial client list includes: Acacia Winery, Clos Pegase Winery, Domaine Carneros, Handley Cellars, Heitz Wine Cellars, Indian Springs Winery, Fess Parker Winery, Franciscan Vineyards, Freemark Abbey Winery, Kendall-Jackson Vineyards, Kenwood Vineyards, V. Sattui Winery, St. Clement Vineyards, Stag's Leap Wine Cellars, Zaca Mesa Winery, Niebaum-Coppola Winery, and Robert Mondavi Winery.

Craig Root's consulting services cover several areas of visitor center performance:

1. Complete visitor center start-up (design review, business plan, income/expense projections, tour creation, trade relations, and complete retail room organization).

2. Appraisal of current operations (through direct consulting and/or a "mystery audit" program) to cover all phases listed in #1. Helping staff develop strategies for more effective tour guide skills, such as voice and delivery — through videotape assessment.

3. Direct mail programs (from start-up to fine-tuning an existing program).

4. Trade relations: How to achieve better results with VIP buyers.

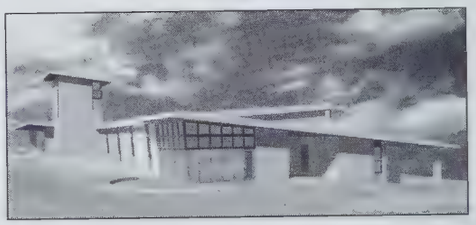
5. Seminars designed to improve management and staff performance (**Management seminar** presented at U.C. Davis and Cornell University, **Sales and Customer Service** for staff and more). Root teaches a class at U.C. Davis on Tasting Room Design and Management.

For more information, contact:
Craig Root & Associates
Visitor Management Resources
10 Upland Rd., St. Helena, CA 94574
tel: 707/963-7589; fax: 707/963-6009

Laurence Ferar & Associates

Established in 1983, Laurence Ferar & Associates is committed to quality architectural and landscape design with a common sense approach to meeting client needs. Researching winery design, Laurence Ferar has visited over 100 facilities in the U.S., France, Spain, Italy, and New Zealand talking with winemakers about specific challenges and unique solutions.

Like winemaking, winery design is part art, science, and economics. Just as *terroir* lends character to wine, the unique sense of place inherent to each site is central to Ferar's approach.



An accredited Leadership in Energy & Environmental Design (LEED) professional, Ferar is committed to principles of sustainable development and energy-efficient design.

The firm has broad experience in gravity flow facilities including: Adelsheim and Lemelson Vineyards (Oregon), Pepper Bridge Winery (Washington), and Woollaston Estates in New Zealand. Other clients are: Leonetti Cellar, Alloro Winery, and Red Mountain Vineyards. Current design projects are: Soter Vineyards (Oregon), Littorai Wines (California), and Sandhill Winery (British Columbia).

Professional services include site evaluation, master planning, integrated building and garden design, and governmental permitting assistance. The firm encourages inquiries for any size project. Laurence Ferar and Associates has the expertise to carry out demanding assignments, and shares your enthusiasm for winemaking success.

For more information contact:
Laurence Ferar and Associates, Inc.
1016 SW Clay St., Portland, OR 97201
tel. 503/241-5447; fax. 503/241-0826
website: www.ferar.net

2004 EDITORIAL INDEX

WINEGROWING
Trellised vines produce Reserve Zinfandel J/F
Sunlight and temperature effects on Merlot berries J/F
Progress toward reduced-risk pest management M/A
Fish-friendly farming certification for grapegrowers M/A
Avoiding "green" characters in Cabernet Sauvignon M/J

WINEMAKING
New choice for tartaric stability J/F
Thirty years of White Zinfandel J/F
Micro-Oxygenation, a decade of experience M/A
Ortman Family Vineyards — Grafting new venture to established roots J/A
Coro Mendocino Zinfandel blends promote wine region J/A
Flavor 'scalping' by wine bottle closures J/A
Eliminating TCA from sources other than corks J/A
Red wines and long-term development with screwcaps J/A
Walter Schug's passion for Pinot Noir S/O
Barrel-profiling helps winemakers attain quality and consistency N/D
Assessing red wine astringency N/D

GRAPEGROWING
Dynamic vineyard management pays off M/A
Advantages of electrostatic sprayers M/A
Syrah in California — Decline or Disorder? M/J
Making sense of modern grape farming M/J
Vine mealybug spreads through California vineyards M/J
Vineyard netting — Keeping birds at bay J/A
Cover cropping for organically farmed vineyards S/O
Advancing sustainable winegrowing practices N/D

WINE MARKETING
Enhancing tasting room service to *drive* revenue M/A
10 Steps to successful winegrape marketing J/A
Build brand equity — Prune your portfolio S/O
Behind the new Fetzer face S/O
Growing profits by getting smaller N/D

VARIETAL REVIEW
Santa Ynez Valley Cabernet Sauvignon J/F
Single Vineyard Dry Creek Zinfandel M/J

WINERY SAFETY
2003 San Simeon Earthquake lessons M/J

SUPPLIER SHOWCASE
Winery Equipment & Cooperage J/F
Vineyard Equipment & Irrigation M/A
Winemaking Supplies M/J
Packaging J/A
Vineyard Supplies & Services S/O
Professional Services N/D

FOOD & WINE
Pushing the Cabernet envelope J/F
Dry Creek Valley single-vineyard Zinfandels got personality M/J

SMART VITICULTURE
Dr. Konstantin Frank, Vinifera pioneer in eastern U.S. J/F
Successful irrigation in Monterey County M/A
Syrah Disorder — New worry for California vineyards? M/J
Beauty, Viognier, and Smart-Dyson at R.H. Phillips J/A
Psychological — not physiological — ripening? S/O
Vineyard design the best way N/D

SUSTAINABLE BUSINESS
Looking to the sun for renewable energy J/F
Improved wastewater treatment at Hess Collection Winery M/A
Wineries offered rebates for energy efficiency S/O

VINEYARD INVESTMENT
It's always darkest before dawn J/F

INDUSTRY NEWS
Michigan viticulturist received 2003 Integrity Award J/F
Industry Champions win 2004 Integrity Award N/D

FREE RUN
Lyrique du Rhônely Hearts? M/A
Challenges await growers M/J
Free your wines S/O
On being from somewhere — Don't lose your place! S/O

PACKAGING
R.H. Phillips takes a leap with spirits packaging J/A
Total cost analysis of wine closures J/A
Controlling glass quality at your winery J/A

WINERY OPERATIONS
Take care of your equipment: Pre-harvest maintenance basics J/A
Analyzing wine production costs N/D

PERSONNEL POINT OF VIEW
Beware the impulsive hire S/O
Successful change N/D

THE BETTER WAY TO CONTROL WEEDS
Call now to find out more about our very successful M-9700 In-Row Mower
End the controversy of using herbicides with the KIMCO 9300 In-Row Tiller.
Tilling in your orchards and vineyards has never been safer or more efficient.
Fast & accurate
Fits six-foot rows & up
Automatic with manual override
Operator always in control
Ultimate in-row weed control
Non-selective weed control
Durable & trouble free
Easy to operate
KIMCO
Manufacturing, Inc. Fresno, CA.
9200 West Barstow, Fresno, CA 93722-9319
559.277.9300 Toll Free 1.800.356.9641

UNIFIED WINE & GRAPE SYMPOSIUM

STATE-OF-THE-ART EQUIPMENT

INFORMATIVE SPEAKERS

NEW SERVICES

FRESH IDEAS

INDUSTRY UPDATES

Do you have questions about the future of our industry?

Join other professionals as all phases of the industry are examined from strategic thinking to market demographics.

January 25–27, 2005
Sacramento Convention Center
Sacramento, CA USA

Registration and hotel information will be available in November.

For more information, please call
Toll Free 800-550-1496 –
Outside USA 650-416-2486
or visit our website at
www.unifiedsymposium.org.

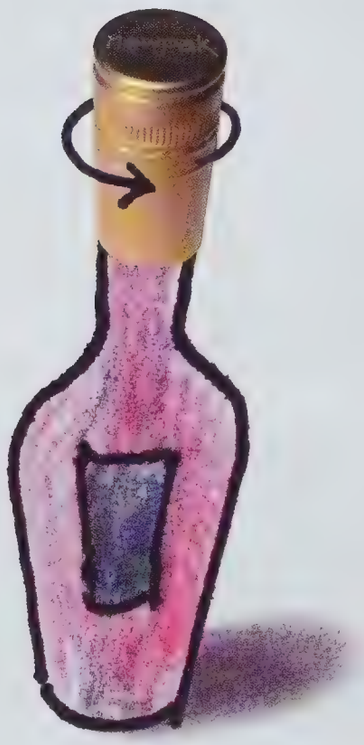
UNIFIED WINE & GRAPE SYMPOSIUM

WHERE THE INDUSTRY AND INFORMATION CONNECT

PWV OFFERS CHRISTMAS GIFTS WITH CONTENT!

❄ Wide array of Bookshelf titles
❄ Gift subscriptions
❄ Gift certificates

Order early for prompt holiday delivery!



Take it for a spin

Introducing SAVin, the Newpak Screwcap

Considering screwcap technology for some of your wines? Now you have a choice. The new SAVin screwcap from Newpak USA offers the highest quality whether you choose from our readily available stock or let us produce your custom design. And it's all backed with the service and support you would expect from a member of the Cork Supply Group, your top of the bottle experts.

newpak USA

Newpak USA, a member of the Cork Supply Group
Newpak USA • 537-F Stone Road, Benicia, CA 94510 • 707-746-5704

PWV BOOKSHELF

USE THE BOOK ORDER FORM IN THIS ISSUE • Your wine books promptly shipped from one source.

Chemical Analysis of Grapes & Wine: Techniques & Concepts (2004).
P. Iland, N. Bruer, G. Edwards, S. Weeks & E. Wilkes
Comprehensive theory and practice of major chemical analyses of grape and wine.
115pp—$110.00

Concise Guide to Winegrape Clones for Professionals, 2nd Edition
John Caldwell **56pp—$39.00**

Cooperage for Winemakers
Geoffrey Schahinger, Bryce Rankine
Manual on construction, maintenance, and use of oak barrels. User-friendly, informative text and photos **112pp—$25.00**

Flowering and Fruitset in Grapevines
Peter May
How weather affects fruitset. Published by Phylloxera and Grape Industry Board of South Australia. **120pp—$26.00**

Growing Quality Grapes to Winery Specifications by M. Kristic, G. Moulds, B. Panagiotopoulos, & S. West
Quality measurement and management options for grapegrowers. **103pp—$32.50**

Knowing and Making Wine
Emile Peynaud **391pp—$85.00**

Micro Vinification
M.R. Dharmadhikari & K.L. Wilker
A practical guide for home winemakers, commercial small-scale producers, and large wineries making small, experimental lots of table wine.
145pp—$25.00

Oregon Viticulture Ed Hellman (editor)
Comprehensive, easy-to-use guide for commercial Oregon vineyards, combining expertise of university researchers with grape growers and winemakers. **272pp—$44.95**

Refrigeration for Winemakers
R. White, B. Adamson, B. Rankine
Original book (reprinted with corrections) that explains how to make most of refrigeration in the winery with a troubleshooting guide.
96pp—$18.00

Soil, Irrigation & Nutrition P. Nicholas
Describe vineyard soil types, how to manage soil treatments, cover crops, and herbicides, optimize water quality, irrigation systems. Nutrient deficiencies and toxicities, how to manage nutritional requirements.
201pp—$55.00

Spinning the Bottle H. Posert/P. Franson
50 case studies in wine public relations promoting wine, wine companies, and wine-related issues.
220pp—$39.95

A Zinfandel ODYSSEY
DON'T MISS THIS DEFINITIVE ZINFANDEL LOVER'S TOUR OF CALIFORNIA'S QUINTESSENTIAL GRAPE.
100 interviews with Zinfandel growers and producers throughout California and Mexico.
450 pages including photos
Edited and published by ***PWV***
$60.00

Sunlight into Wine
R. Smart & M. Robinson
Canopy management and economics, improvement of canopy microclimates, importance of winegrape canopies, construction of trellis systems.
88pp—$39.00

Synthesis of 7th International Symposium of Oenology of Bordeaux
Christopher Gerland **64pp—$39.00**

The Taste of Wine Emile Peynaud
A masterclass on science, procedures, and vocabulary for the professional. **258pp—$39.95**

Understanding Wine Technology
David Bird
Chartered chemist explains wine science: constituents of grapes, complexities of fermentation, clarification, and stabilization.
226 pp—$30.00

Using Grapevine Rootstocks, The Australian Perspective Peter May
Use of rootstocks in Australia including physiology and factors affecting rootstock choice.
62pp—$19.50

Vineyard Simple Tom Powers
Provides a clear outline with diagrams and color photos on how to build and maintain your own vineyard. **118pp—$19.95**

Viticulture, Vol. II, Practices in Australia
B.G. Coombe & P.R. Dry
Grapevine propagation, vineyard establishment, pruning, canopy management, irrigation, grapevine nutrition, grape pests, disease, protection. **384pp—$42.50**

Vineyards in the Watershed
Julianne Poirier Locke
Sustainable winegrowing in Napa County: erosion, water, weeds, soil, wildlife, cover crops, vine health, and organic farming.
181pp—$15.95

Viticulture & Environment
John Gladstones
Site, variety, and cultural practices. Climatic analysis of Australian and world viticultural areas, new viticultural sites and possible changes in the climatic conditions.
310pp—$45.00

Wine Analysis and Production
B. Zoecklein, K. Fugelsang, B. Gump, & F. Nury
A practical understanding of quick screening assays, wet chemical and instrument analysis plus results and interpretation of winemaking.
512pp—$89.95

Winegrape Berry Sensory Assessment in Australia *NEW!*
E. Winter, J. Whiting, J. Rousseau
How to examine berries before harvest with 20 standardized and industry-tested criteria, by judging stems, skins, pulp, and seeds.
64pp—$28.00

Wine Grape Varieties in California *NEW!*
edited by P. Christensen, N. Dokoozlian, M.A. Walker, & J. Wolpert
Guide to growers and vintners making decisions about variety plantings and growing practices.
190pp—$30.00

Wine Growers Guide Philip Wagner
Easy to understand essentials to establish a vineyard, pruning, training, vineyard management, propagating vines, and vine ailments. **240pp—$19.95**

The Winemakers Dance: Exploring Terroir in the Napa Valley
Jonathan Swinchatt & David G. Howell
How geology, microclimate, and vintners created the distinct Napa Valley wine region and example of *terroir*. **229pp—$34.95**

Wine Microbiology Ken Fugelsang
Provides background information, step-by-step laboratory procedures, and interpretation of results. **245pp—$79.95**

Winery Utilities Planning, Design, and Operation David Storm
Describes major components of winery utility systems for planning, design, and operation.
550pp—$105.00

Winery Wastewater Handbook: Production, Impacts, and Management
J. Chapman, P. Baker, & S. Wills
Examines the chemical nature of wastewater, its impacts, how it can be handled efficiently, and disposed of responsibly. **128pp—$21.00**

2005 Unified Wine & Grape Symposium program filled with optimism

A group of 28 industry leaders have worked hard to prepare the program for the 2005 Unified Wine & Grape Symposium at the Sacramento Convention Center, Sacramento, CA, on January 25–27, 2005.

As the group assembled the 2005 program, Paul Ginsburg, program chairman, says it became more evident than ever that the focus needed to be on how global trends continue to shape the industry. "After dealing with oversupply issues and depressed prices, we see more optimism in this year's event. The apparent upturn for the wine and grape industry makes it more exciting to focus on the big picture issues and a look at our marketplace in the context of the global industry."

As in previous Symposiums, break-out sessions will be organized into four different categories, after the general sessions. Break-out topics are grape-growing, winemaking, business and finance, and marketing and public relations.

While much of the program and speakers are still tentative, some likely topics include: "Rethinking the Wine Business Model," which examines global wine market trends; "The Cultural Lens and Branding Trends," which looks at demographic and cultural shifts shaping behaviors and attitudes in the market; and "Ethnic Marketing" and how to tap into this fast-emerging market. Also included are viticulture and winery sessions presented in Spanish.

The informative "State of the Industry" general session is planned for Wednesday of the three-day event. Several industry leaders will present statistics and trends and offer opinions on what it all means to the wine and grape industry as a whole.

Created with the joint input of growers, vintners, and allied industry members, the Unified Wine & Grape Symposium provides wine and grape industry professionals access to the latest information they need to remain competitive. Jointly organized by the American Society for Enology & Viticulture and the California Association of Winegrape Growers, the Unified Wine & Grape Symposium represents the collective experience, knowledge, and background of the entire industry. The Symposium also hosts the industry's largest trade show in the U.S., with over 550 suppliers displaying their products and services.

For more information, call 800/550-1496 or 650/416-2486. On the Internet go to www.unifiedsymposium.org. ■

Human Resources Consulting, Training & Recruiting Services

"The Personnel Perspective is a valued partner to our business. From human resources and organizational development consulting to high level recruiting, they provide us with both a wealth of expertise and relevant, practical help in managing our company. We at J Wine Company respect and appreciate their standard of excellence."

J WINE COMPANY
Judy Jordan, President

HR Compliance Assessments
Supervisory & Management Training
Leadership Performance Coaching
Compensation & Bonus Systems
Performance Review Systems
Employee Handbooks, Policies & Procedures
Conflict Resolution
Outplacement & Career Consulting
Retreat & Meeting Facilitation
Organizational Development
Recruitment Services

THE PERSONNEL PERSPECTIVE
SANTA ROSA, CA **707-576-7653**
www.personnelperspective.com

MOVING?

Be sure to notify *Practical Winery & Vineyard* of your new address, write to: *PWV*, 58 Paul Drive, Suite D San Rafael, CA 94903

TWO VOLUMES

New edition of wine industry lab book

The book formerly known as *Techniques for Chemical Analysis and Quality Monitoring during Winemaking* has been updated and re-written in two volumes to better cover more wine laboratory content.

Chemical analysis of grapes and wine: techniques and concepts

The first volume is by Patrick Iland, Nick Bruer, Greg Edwards, Sue Weeks, and Eric Wilkes (academics, winemakers, laboratory supervisors, and consultants). Comprehensive, up-to-date coverage of the theory/practice of major chemical analyses of grapes/wine is available in 120 plastic-coated pages. A user-friendly, step-by-step approach details the procedure for each analysis method. Many practical clues are given in the 'Helpful hints' and 'Trouble-shooting/Source of errors' sections. This book is suitable for daily use in a wine laboratory, and a student training resource in wine courses.

Monitoring the winemaking process from grapes to wine: techniques and concepts

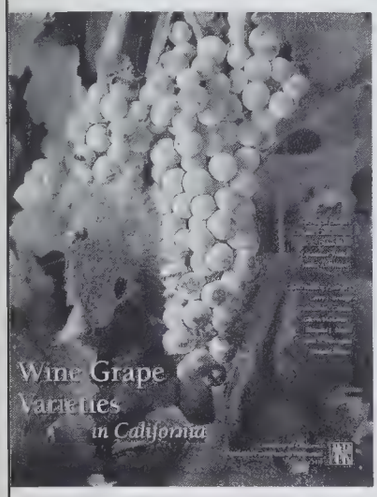
Volume II by Patrick Iland, Nick Bruer, Andrew Ewart, Andrew Markides, and John Sitters, provides coverage of concepts, tests, and techniques that winemakers use to monitor wine style/quality indicators throughout the winemaking process. The book includes techniques for tasting grapes, winemaking operations including fermentation concepts, additions, fining trials and stability tests, and sensory evaluation of wine. The 120-page plastic-coated book is suitable for daily use by winemakers.

■

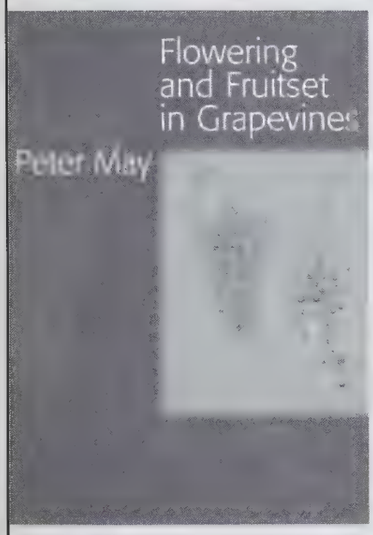
Each volume is available from the ***PWV Bookshelf*** for $110 U.S.

PWV OFFERS CHRISTMAS GIFTS WITH CONTENT!

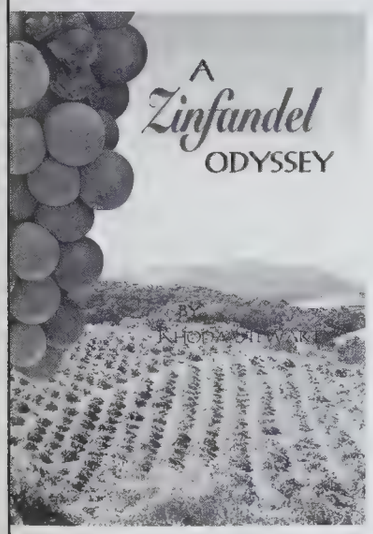
Wide array of Bookshelf titles



First comprehensive varietal publication written by University of California Extension advisors covering all California wine regions! **$30**



Thorough review of relevant scientific and technical literature about the critical growing period in the cycle of the grapevine! **$26**



Stories, perspectives, and techniques from more than 100 Zinfandel producers! **$60**

Gift subscriptions and certificates
Order early for prompt holding delivery!
415/479-5819
www.practicalwinery.com

AMERICAN VINEYARD FOUNDATION

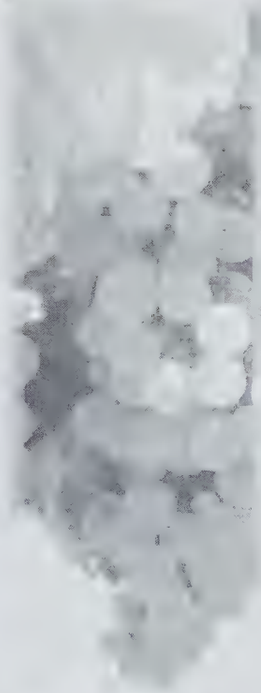
Moving the Industry Forward

Research for the Future

American Vineyard Foundation
Kim Waddell, Exec. Director
P.O. Box 5779, Napa, CA 94581
707 252-6911 FAX: 707 252-7672
Waddell@avf.org

Visit www.etslabs.com to learn more about:

ETS® LABORATORIES
St. Helena, CA
McMinnville, OR
Telephone 707•963•4806
info@etslabs.com



- **Harvest Analysis**
  Panel of analyses for harvest and fermentation
- **Real Time PCR Analysis**
  New detection capabilities for spoilage organisms
- **Brettanomyces**
  GC/MS analysis at trace levels of 4-ethylphenol and 4-ethylguaiacol
- **Red Wine Phenolics**
  HPLC profile based on time-proven quantitative ETS analysis

International Standard ISO 17025
Accredited Quality System
Certificate Number 1257-01

PERSONNEL POINT OF VIEW *by Anne Heron*

Successful change

"How's your new job going Karen?" Our firm had recently placed Karen in her dream job — accounting manager at a mid-size winery.

"I'm so excited about this opportunity!" she replied enthusiastically. "There's so much to learn, and at the same time, I feel I can make a contribution right away." She went on to explain that the accounting systems and procedures that the winery used were really out-of-date. They were planning to upgrade to the same system she'd helped to implement in her previous job.

Karen went on to share some concerns she had about the change. "I hope that the staff will adapt to the new system. They're really comfortable with the way things are done now. Carrie, who's been here the longest, practically single-handedly designed what we're currently using. I'm not sure how she'll take to this. How can I get her and the others to accept this change? I'm going to need their help to pull it off and make it successful."

Karen and I talked through some of the ways she could most effectively introduce and implement the change. Here are a few of the things we discussed.

"WHAT'S THE REASON FOR THIS CHANGE?" Karen explained what led up to the decision to upgrade the accounting system — it didn't link to any other systems in the winery; it required a lot of data entry and manual work to create reports; the many "work-arounds" made it hard to learn and created errors. "I could go on and on," she sighed. "It's a mess, it's outdated, it's barely functional."

The change was clearly needed from management's viewpoint, and they were well on their way to making it happen. They had created objectives for what the new system would need to accomplish. A timeline had been put together for selecting and implementing the new system. The software had been purchased and a schedule developed for installation. From a "project management" viewpoint, this project had been set up well and was proceeding on target.

"DOES THE STAFF UNDERSTAND THE SITUATION?" Karen hesitated for a moment. She didn't know the answer. She'd assumed that the staff had been part of the planning process for the new system. When she came on board, they'd shared the challenges they faced with the current system — telling "war stories" about nearly-missed mistakes and late nights spent on reconciliations. However, she'd never asked whether they saw the need for a new system or if they were involved in creating the elaborate plans that she was hired to implement.

The good news in this situation was that the winery's management had a strong reason for making changes and a clear understanding of what would be done. Often this is not the case. The first step in "selling" any change to fully understand what is needed and why. Establishing objectives and clarifying expected results are key to a well-planned effort to change.

The bad news was that the management team had not yet talked to the staff about their plans. The managers were worried about buy-in. They didn't want to upset anyone. They didn't know when to tell them, so they had said nothing. However, it was not too late to engage staff in the change process, and Karen was going to tackle it.

"HOW WILL THIS CHANGE AFFECT THEIR WORK?" Karen's first step, before she met with her staff, was to think about what the change might mean to each of them and their roles within the department. She prepared to address their possible concerns — about job security, learning new skills, taking on new job duties, and meeting performance standards during the transition.

Fortunately, this change was likely to have a positive impact on everyone. With less manual work to do, they'd be able to perform higher-level accounting activities. They would gain marketable skills. They would now have time to complete the projects that had been sitting in the "to do" box for a long time. Karen felt this part of her conversation with the staff would go quite well.

"HOW WILL THIS CHANGE AFFECT THEM EMOTIONALLY? HOW WILL THEY REACT?" No matter how wonderful and fulfilling a change is, we usually experience a variety of emotions. There's excitement, curiosity, anticipation. Often, however, there's also a sense of loss. What was familiar will be gone, and with it the comfort and safety of the known.

There are many types of "losses" that one may feel. One is the loss of security. We may no longer feel in control or know what the future holds. We may not know where we stand after the change. Another type of loss is that of competence. We no longer are experts at what we do and may even feel embarrassed by our lack of knowledge and skill. It's often hard for an adult to be a "student," and sometimes the feeling that we know nothing in one area makes us feel like we're worthless overall.

We can also experience the loss of "territory" — the areas that defined us in the organization. This may be a loss of workspace or job assignments. We may lose the role we played in problem situations, when something special was called for. Relationships may also be lost. Familiar contact with old customers, co-workers, or managers can disappear. We sometimes lose our sense of belonging to a team, a group, or an organization.

Karen thought about how her staff might experience this change. Carrie would no longer have a special expertise. She really enjoyed getting the company out of a jam with her ability to jerry-rig the old system and make it meet new demands. Now she would be struggling like everyone else to learn new operations, and when problems were encountered, she'd be in the dark as to how to fix things. Sally, the other accounting assistant, would move to a different work area as they made room for new equipment.

"HOW WILL THE STAFF BE INVOLVED IN THE CHANGE?" People like to be in control of their destiny and their future. As a colleague once told me, "People don't resist change, they resist being changed." Involving staff in the change process can also help them stay focused and informed. It can minimize rumors about failures and problems and foster exploration of success strategies.

Karen thought about how each one of them could contribute to the effort, based upon her special skills and also on

her possible reactions to the change. Carrie could be assigned to be the "guru" for the new system. With her expertise in the current system, she would be invaluable in helping design transition strategies. Sally could take the lead in finding space for the new equipment.

Karen was sure that both of them would have a lot of ideas and opinions about the new system and its implementation. However, she was a bit concerned about encouraging them too much. She was afraid she might be opening "Pandora's box." What if they came up with ideas that wouldn't fly? What if they didn't agree with what had been planned already? Would they expect to have things done their way, or else?

The key for Karen would be to communicate the rationale, goals, and "givens" about the change. If she shared the background of the situation, the staff would be better able to understand what was going to happen and why it was important. Setting parameters for input and establishing priorities would help them know where they stood and where to focus their input.

She could also use this time to ask about their concerns regarding the change and incorporate ways to address these into the project plan. Because employees are very close to day-to-day activities, they often have good insights into what might go wrong and what needs to be accounted for in an implementation.

"HOW DO YOU KEEP THE ENERGY GOING?" It was two weeks after our initial phone conversation, and Karen seemed a bit frazzled. Implementation of her new system was underway. The staff had responded well to their initial meeting. However, between the pressures of keeping up on daily obligations and some glitches in the transition, things were getting pretty tense in the office. The team had not met again about the project, and Karen was working after hours to keep the problems at bay. It was time to regroup and do something to sustain the change effort.

A change effort can be aided greatly by planning and a good beginning. But the devil is in the daily details. Communication is key to this part of the process. Regular updates on the project plan are valuable to get everyone involved and focused, once again, on the end result.

Acknowledge and reward successes. Share progress and celebrate milestones. It's also important to evaluate and learn from mistakes and problems as you go along. If you change direction, take the time to explain why. Think about re-recruiting your staff on a regular basis to foster their commitment to what lies ahead.

Karen instituted regular staff updates and as the project went along, she also asked for input on the implementation problems. She looked for ways to encourage risk-taking and initiative. When she felt resistance, she addressed it quickly to keep the positive momentum. Things were moving along well

Several weeks later, Karen left a message for me. "I'm proud and happy to report that we've closed our first quarter with the new system. It's up and running — and we're on to our next change!" ■

Anne Heron is a Senior Associate with The Personnel Perspective, a human resources consulting, training and recruiting firm in Santa Rosa, California. Anne has over 25 years of management and HR experience. You can contact her at tel: 707/576-7653 or by email at: anneh@personnelperspective.com.

INDEX TO ADVERTISERS

ADVERTISER	PAGE	PHONE	FAX	CONTACT
A&P Ag Structures	47	559/685-8700	559/685-8622	Charlie Castro
ADI Systems, Inc.	57	800/561-2831	506/452-7308	Connie Smith
Agajanian Vineyards	54	707/433-6654	707/433-6684	Gary Agajanian
Agro-K Corporation	12	800/328-2418		Dennis Culver
American Ag Credit	6	800/800-4865	707/545-9400	Terry Lindley
Atago USA, Inc.	38	425/821-9050	425/825-5525	Frank Young
Lloyd W. Aubry Co.	34	510/732-9038	510/732-3137	Robert Butler
Axiom Engineers, Inc.	22	831/649-8000	831/649-8038	Barbara Rivers
BAR Architects	35	415/441-4771	415/536-2323	Linda Crouse
Barrel Builders	38	800/365-8231	707/942-5426	Phil Burton
Boswell Company	54, 59	415/457-3955	415/457-0304	Jim Boswell
Bulldog Manufacturing	26	805/541-3083	805/544-6181	Gwen Othman
California Grapevine Nursery	48	800/344-5688	707/963-1840	Christine Palmberg
Joseph Ciatti Company	15	415/458-5150	415/458-5160	Joseph Ciatti
ColloPack Solutions	25	707/258-3940	707/258-3949	Greg Fulford
Cork Supply USA	2	800/961-2000	707/746-7471	Justin Davis
Criveller Company	84	905/357-2930	905/374-2930	Bruno Criveller
Duarte Nursery	88	800/GRAFTED	209/531-0352	John Duarte
Encore!	40	510/234-5670	510/234-0433	John First
Enyeart Cedar Products	39	800/551-6657	503/697-9385	Ron Enyeart
eSkye Software	24	707/996-9754	707/996-5509	Bronwen Carlin
ETS Laboratories	79	707/963-4806	707/963-1054	Gordon Burns
Euro-Machines, Inc.	11	707/864-5800	707/864-5879	Matt Eiser
Fogmaster	55	954/481-9975	954/480-8563	Tom Latta
Galo MacLean Nursery	26	707/255-8874	707/255-4579	Françoise MacLean
Gordon Graphics	35	415/883-0455	415/883-5124	G. Lindstrom
Government Liaison Services	32	800/642-6564	703/525-8451	James Hurson
GusmerCellulo Co.	33	559/485-2692	559/485-4254	Roger Pachelbel
House Manufacturing	14	800/327-8299	870/588-3517	John House
Hoyt Shepston, Inc.	58	650/952-6930	650/952-5691	Fred Hosking
Innerstave	32	707/996-8781	707/996-1157	Bob Rogers
Kendall Jackson Nursery	20	707/836-2021	707/836-2266	Ernie Bowman
Kimco Manufacturing	75	800/356-9641	209/277-9358	Kim Welker
Kinsey Agricultural Services	8	573/683-3880	573/683-6227	Neal Kinsey
Lescure Engineers	39	707/575-3427	707/542-2353	Demerus Lescure
Lodi Winery Laboratory	19	209/339-1990	209/339-1975	S. Walker-Tansley
Mercier USA	75	707/251-5818	707/251-5811	Krimo Souilah
Modular Information Systems	60	866/647-3757		Lisa Corbett
Napa Fermentation Supplies	42	707/255-6372	707/255-6462	Pat Watkins
Newpak USA	76	707/746-5704	707/746-7471	Justin Davis
Nomacorc	28	919/269-4728	919/269-7936	M. Thompson
Osborn Design Group	50	707/542-3770	707/542-3771	Susan Ryan
Personnel Perspective	78	707/576-7653		C. Silvestri
Pinnacle Capital	34	888/223-2600	888/223-3600	Diana Hodson
Paige Poulos Communications	43	800/497-3376	510/970-9778	Paige Poulos
Premier Power	9	877/939-0400	916/939-0490	Deborah Millhollin
Ramondin USA	3	707/944-2277	707/257-1408	Melinda Elledge
Ray Carlson & Associates	27	707/528-7649	707/571-5541	Ray Carlson
Refrigeration Technology	42	800/834-2232	707/987-4581	Glen Marks
Riechers Spence Associates	30	707/573-1872	707/573-1953	Hubi Schrage
Rivercap USA	52	707/747-3630	707/746-7471	Jeremy Bell
Saint-Gobain Containers	21	800/428-8642	765/741-7012	Marilyn LaGrange
St. Patrick's of Texas	18	512/989-9727	512/989-8982	Lynne O'Connor
Santa Rosa Stainless Steel	37	707/544-7777	707/544-6316	Rod Ferronato
Scott Laboratories	55, 85	707/765-6666	707/765-6674	Steve Doherty
Seguin Moreau	87	707/252-3408	707/252-0319	Kristen Palmer
SPEC Trellising	27	800/237-4594	215/357-3122	Michael Schmidt
STA Laboratories	23	800/426-9124	303/772-4003	J. Davis-Lowery
StaVin, Inc.	56	415/331-7849	415/331-0516	Alan Sullivan
Stoel Rives	23	415/617-8925		Christopher J. Carr
Summit Engineering	17	707/527-0775	707/527-0212	Jane Rogan
Sunridge Nurseries	29	661/363-8463	661/366-4251	Terrie Stoller
Tonnellerie Boutes	53	510/799-1518	510/799-1557	Manny Martinez
Tonnellerie Quintessence	49	707/935-3452	707/935-3422	Brian Hartley
Tonnellerie Saury	44	707/944-1330	707/944-1370	Bayard Fox
TW Boswell	41	707/255-5900	707/255-5952	Ed Larmie
Vintage Nurseries	83	800/499-9019	805/758-4999	Jeff Sanders
Weed Badger	7	701/778-7511	701/778-7501	Jeffrey Anderson
Wine Country Real Estate	46	707/433-2700	707/433-2052	Karen Kenny
Wines Central	19	707/551-7000		Debbie Polverino
World Cooperage	13	888/33-COOPER	707/255-5952	Ed Larmie

SMART VITICULTURE *by Dr. Richard Smart*

Vineyard design the best way

Compared to only a decade ago, the process of designing vineyards today is remarkably changed. Think of the tools currently at our disposal ... GIS (Geographical Information System), GPS (Global Positioning System), soil survey, soil analysis, computer software for mapping, and more.

One could say that vineyard design was easier in the past. Vineyards were typically laid out parallel to the fences, with headland placement somewhat arbitrarily defined. Perhaps some variation on this might occur to accommodate slopes requiring irrigation, but essentially fences defined the vineyard design.

Why design vineyards?

Today, we are beginning to realize how variable vineyards are. This information is coming increasingly from aerial imagery, especially from enhanced infrared photos that show variations in vine vigor.

Other studies show variation in fruit composition and even wine quality across a block. Most studies attribute this vigor variation (hence vine and fruit composition) to soil changes, especially changes in those soil properties that influence the soil's ability to store water Texture profiles and root zone depth are most important.

New studies also demonstrate that the old method of laying out vineyards produces variable vineyards, and this in turn has been shown to lead to diminished wine quality.

The "modern" approach to vineyard design is based on soil mapping to determine spatial distribution of essential soil properties and to allocate blocks appropriately, in order to minimize soil variation within a block. This column gives a recent example of this modern approach to vineyard design.

Design of the "North Slopes" Vineyard

I am involved in a project for Tamar Ridge Wines in northern Tasmania. We are planting new vineyards for premium and ultra-premium, cool climate-style wines. We began planting 375 acres in spring 2004, and the "North Slopes" vineyard described here is one of three being developed.

Selecting the site

For this project, we used sophisticated climate matching (homoclime searching) to locate Tasmanian vineyard sites with similar climates to some of the world-famous cool climate sites. The North Slopes vineyard is, in fact, contiguous to the existing Tamar Ridge Vineyard, where award-winning wines — including Pinot Noir — are produced.

The new site offers the advantage of soil with lighter texture and north-facing slopes (remember Tasmania is in the southern hemisphere). I believe that the choice of site is probably one of the most important decisions ever made about a vineyard — it ranks right up there with choice of spouse!

Preliminary survey

John Hewitt, and I performed the preliminary survey of the prospective vineyard site before the land was purchased. We walked the block, taking occasional soil samples by auger (to a depth of three feet), and noting the presence of rocky areas where we could not plant.

It was important also to establish drainage lines and to identify any potential drainage problems. For example, pasture composition or the presence of reeds indicated areas with poor drainage. We also located a potential reservoir site, which is an important part of site selection in Australia. Growers typically apply about six inches of irrigation water every year in this environment, though there is some rainfall over the summer months.

Our conclusion was that the property was satisfactory for vineyards, so the land was purchased. Soils and drainage were adequate; the north-facing slopes would encourage ripening in a climate occasionally subject to cool summers; and there was ample opportunity for surface drainage (which is cheap) and limited need for more expensive sub-surface drainage.

Because of the slopes (up to 5%) and proximity to a nearby bay, there would be little frost risk. The existing dam site would lead to relatively low-cost water storage. A final important criterion was that a high proportion of the block could be planted, since only small areas were too rocky. A vegetation analysis subsequently determined that one patch of bush contained plant species of ecological significance, so it could not be cleared or planted.

Surveying

Surveyors made a differential GPS survey of the block by traversing it in a vehicle with a GPS unit mounted on the roof. This produced the map of contours, which confirmed the initial assessment of the suitability of the reservoir site and gave an estimate of capacity, along with a preliminary indication of plantable area — about 65 acres. A GIS consultant overlaid the resulting contour map on an aerial photograph using GIS software, and this could be repeated for each design stage.

Catchment assessment

The reservoir capacity was estimated at 22 million gallons, but would this be enough for the vineyard, and equally important, was there enough catchment to reliably fill the reservoir each winter? The first question was easy to answer, as the reservoir capacity translates to about 12 inches for each acre, and an average year requires only six inches.

The local water consulting company performed the catchment analysis, and declared the catchment adequate. As a backup in case of really dry winters, the consultant suggested a system to intercept drainage water leaving the property at the lowest point and return it to the reservoir. The catchment predictions were accurate, as the reservoir filled in the first winter.

Drainage assessment

Using the topographical map superimposed on the aerial photograph, a more detailed drainage assessment was made. This involved locating interconnecting surface drains, including an intercept drain beneath the crest of the hill on the southern boundary to catch overland flow.

We walked the property with local soils and drainage experts, looking for tell-tale plants and flat spots. A few isolated areas of dryland salinity were located, as well as a generally flat and poorly drained area in the northwest corner

LETTER TO THE EDITOR

Dear Editor:

I feel moved to respond to Dr. Richard Smart's column in the September/October-2004 *PWV*. It seems to me that Richard is right on some counts but dead wrong on several.

Where I part company with Richard is his suggestion that "physiological ripening" and "hang time" lead winemakers "to disregard other vineyard management procedures that foster quality, as long as the date of the harvest is correct." Given the number of non-ideal blocks that winemakers often encounter and the problems that Mother Nature throws winemakers each vintage, delaying harvest is perhaps the only action available to produce better flavors.

For example, what I find is a Chardonnay (that stalls out) continues to acquire more yellow color and tropical flavors over time (hang time!). Stalled Pinot Noir keeps green, vegetative skin flavors while reaching high Brix, but with (hang) time, the greenness disappears from the fruit. So, hang time becomes a tool for correcting a problem in the vineyard or created by the weather that winemakers often don't have control over.

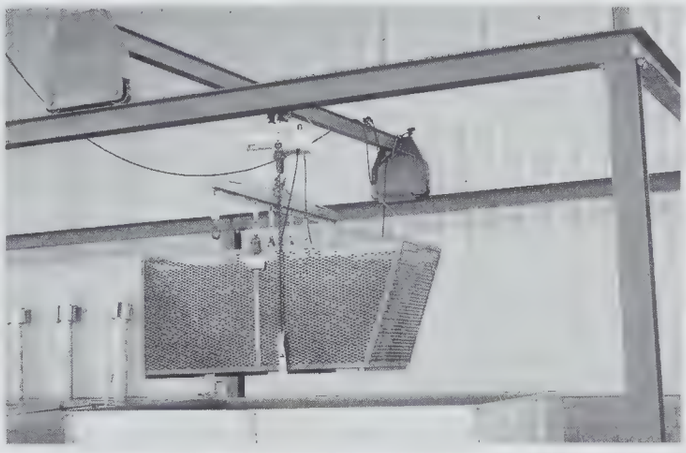
I also found it odd that Richard invites us to "come into the vineyard so you become 'real winemakers' and where we can all talk about and measure those things which are really important" yet he dismisses winemakers who go into the vineyards to taste grapes to determine maturity, saying "they cannot taste most grape flavors which they maintain they can." Having made wine since 1986, I believe experienced winemakers can accurately taste grapes and gather visual clues to evaluate their ripeness and flavor.

If we are to talk about and measure things that are important, then let's talk about flavor, which the column does **not** address. Flavor is everything, even if we don't have good tools to measure it. People want ripe flavors, nothing less. Winemakers ignore this to their own economic detriment.

Perhaps hang time is only a Band-Aid to problems in the vineyard, but why blame winemakers for using whatever means legally available to make a more flavorful wine? It is a logical response to these "prior defects." Instead, let's retrofit lousy trellises, let's be better at leafing and shoot positioning. And let's lose this attitude that the winemaker is somehow responsible for the problem. Treat the cause, doctor, not the symptoms.

Harry Hansen,
Edna Valley Vineyard
San Luis Obispo, CA

We Always Dip 'Em Before We Ship 'Em



Free Hot Water Dipping, Another *Vintage* Advantage

When you're known for innovative nursery technology and the highest level of quality control, there's just no wiggle room for pests and pathogens. That's why Vintage Nurseries takes the extra step of providing our customers with **free hot water dipping** on all bare root vines and cuttings. This intricate process, developed to protect against vine mealybugs, nematodes, phylloxera and other infestations, is one more assurance of our commitment to your success. This process allows Vintage Nurseries to be in compliance with CDFA/UCCE protocol recommendations for the prevention of vine mealybugs.

As the nation's largest grape vine nursery, Vintage still believes that our most important yields are quality and service.

Vintage NURSERIES A CUT ABOVE

Wasco 661-758-4777
Modesto 209-523-8036
Paso Robles 805-237-8914
Santa Rosa 707-542-5510

800·499·9019 www.vintagenurseries.com

LETTER TO THE EDITOR

Dear Editor:

I read, with great interest, Dr. Smart's column in the September/October *PWV*. I believe the column is "right on," especially with regard to Syrah winegrapes in the Paso Robles, CA, area. We have a small west side Paso Robles vineyard that sells to local high-end wineries, a couple of whom have done very well with Robert Parker ratings of their Syrahs and Rhône blends.

Every year I go through the struggle with our grape buyers about timing and optimum grape conditions for harvest. Most of our customers insist on picking by flavor in the grape skins with the requirement that juice color be intense and seed color be uniformly dark brown with highly brittle seed texture. The consequence of this is that they are picking at 27° to 28° Brix, even 29° Brix in 2004, with pHs that are in the 3.7 to 4.0 range and TAs of about 5.0 or even less.

My assessment of the single varietal Syrahs resulting from these picking criteria is that they are too one-dimensional and that the high-alcohol, low-acid nature of these wines accentuates the single dimension character of these wines. In addition, the high alcohol and tannin content of the wines appears to mask the fruit flavors (or varietal characteristics).

Our customers reply and the current trend in Paso Robles, is to blend Syrah with Mourvedre and Grenache to achieve the wines that receive accolades from Parker. I agree with our customers that the blending of Syrah with Mourvedre and Grenache do add desired dimension to these wines but have suggested that picking Syrah at a lower sugar and pH would add even further quality to their Rhône blends.

In order to deepen this discussion with our customers, I have challenged them to show me that there is a clear relationship between their desire for "varietal fruit flavor maturity in the skins" and the fruit flavor and nose of the resulting wines. To date, they all agree that they do not know of a study that establishes this relationship, but they note that "winemaking is at least 50% art."

So, I do not press the picking criterion issue too hard with these good customers as all our fruit is long-term contracted. By the way, I am a retired Ph.D. chemist and have a strong interest in providing these customers with the highest quality fruit possible. So, we are at an impasse, but I agree wholeheartedly with the comments in your column.

Sincerely,
Donald C. Hofer
Paso Robles, CA

STEP UP! Share the wisdom of your experience, queries, and/or opinion with ***PWV*** readers. Write a letter to: editor@practicalwinery.com

where subsurface drainage is required. A drainage map was then drawn up, again GPS-referenced.

Soil survey

Last but not least was the soil survey. Usually this is carried out on a grid (about 70 yards square). Our soil surveyor modified the grid to allow for obvious surface features. Twenty-five pits were dug with a backhoe (to six feet in depth) at locations the soil surveyor chose, and each location was geo-referenced. He inspected each pit and noted the properties of each soil layer.

The potential rooting depth of grapevines was recorded. The pits allow independent assessment of drainage requirements. Soil samples were also taken from representative pits for chemical analysis of the nutrient and reaction status.

The results are presented in various forms, such as soil type and nutrient maps. Of most use in vineyard design, however, is the map of Readily Available Water, or RAW, with units in inches. This is an estimate of the amount of readily available water in the root zone and can be calculated from assessments of soil texture in each layer. In general, there was less variation in RAW in this block than in many we map, varying from 2.3 inches to 3.7 inches. These are average values in the range to be expected.

Final vineyard design

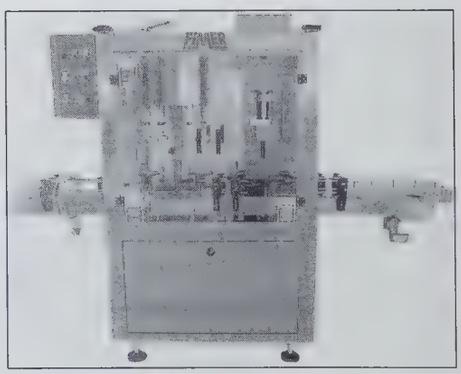
All of this information was superimposed on a comprehensive map, using the GIS, as the basis for the final block design. We chose to run vine rows down the hill, which puts them at almost right angles to the prevailing wind from the northwest.

Further, as this was to be primarily a Pinot Noir and Sauvignon Blanc vineyard, we chose to configure the

CRIVELLER COMPANY
The right alternative for your winery equipment

The SMALLEST MONOBLOC specifically designed for wineries of up to 3,000 cases/year

Ask for a quote!



West Coast USA: 10350 Old Redwood Hwy., Windsor, CA 95472
Ph: (707) 838-2222 • Fax: (707) 838-2242
East Coast USA: P.O. Box 162, Lewiston, NY 14092
In Canada: 6935 Oakwood Dr., Niagara Falls, ON L2E 6S5
Ph: (905) 357-2930 • Fax: (905) 374-2930
Email: info@criveller.com • Website: www.criveller.com

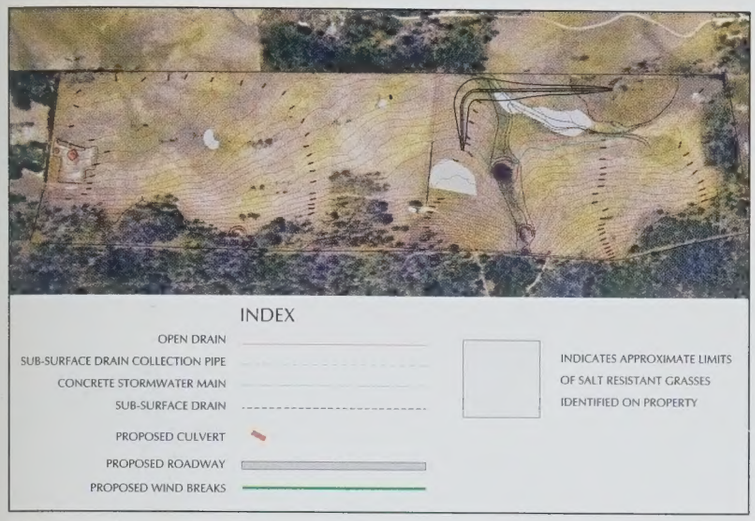


Figure I. The results of vineyard contour surveying superimposed on an aerial photograph. Note the reservoir site. Also shown are some pre-existing man-made drains.

vineyard in small blocks of about one hectare or less to allow separate ferments from our multiplicity of clones and management systems for Pinot Noir. Small blocks also made it easy to keep similar RAW values in each block.

The blocks were also designed for wind protection, with tree windbreaks planted at the windward edge of each block with a final height of five meters. The eight-foot-wide tractor row allowed a maximum number of vine rows per block of about 14, in order to maintain a windbreak height to downwind length ratio of around 8:1.

We chose eight-foot-wide tractor-row spacing as that is as narrow as we could go while allowing the use of a vertically divided canopy like Scott Henry or Smart Dyson. Vine spacing within the row is five feet, as is appropriate for the medium values of RAW noted above.

The vineyard was planted in October 2004 (spring in the southern hemisphere), using a combination of rootlings, callused cuttings, and potted vines. No phylloxera is present in Tasmania, so rootstock is not required.

Wine consumers must wait until at least 2007 to see the benefit of this site design. We are confident that such procedures will greatly reduce variation in fruit composition in any one block and thus enhance wine quality.

Some readers may say this all sounds too expensive and difficult, declaring *"I like the old way."* From the cost view-

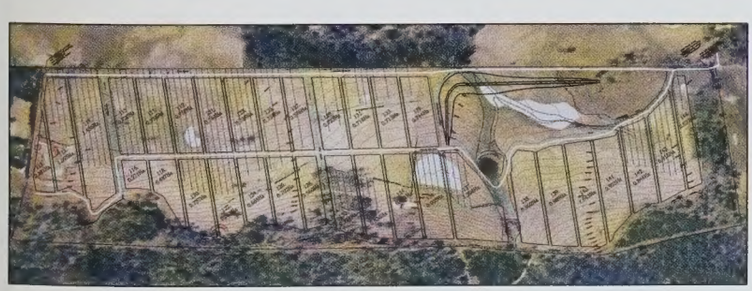


Figure III. Final block layout showing shelter-belts, block outlines, and surface and sub surface drains.

THE FRUITS OF RESEARCH
Laffort
Grands Crus
THE GELATINS
• EXTRA N° 1
Clarification of structured and balanced wines
• GELAROM
Clarification of light wines
Management of aromas
• GECOLL SUPRA
Quick clarification of all types of wines. Elimination of aggressive and astringent tannins
The best of your grapes
SCOTT LABORATORIES
2220 Pine View Way
Petaluma, CA 94954
Phone : (707) 765-6666
Fax : (707) 765-6674
LAFFORT ŒNOLOGIE
950 Brock Rd. South, Unit 1
Pickering, Ontario L1W 2A1-Canada
Phone : 905 839 9463 • Fax : 905 839 0738

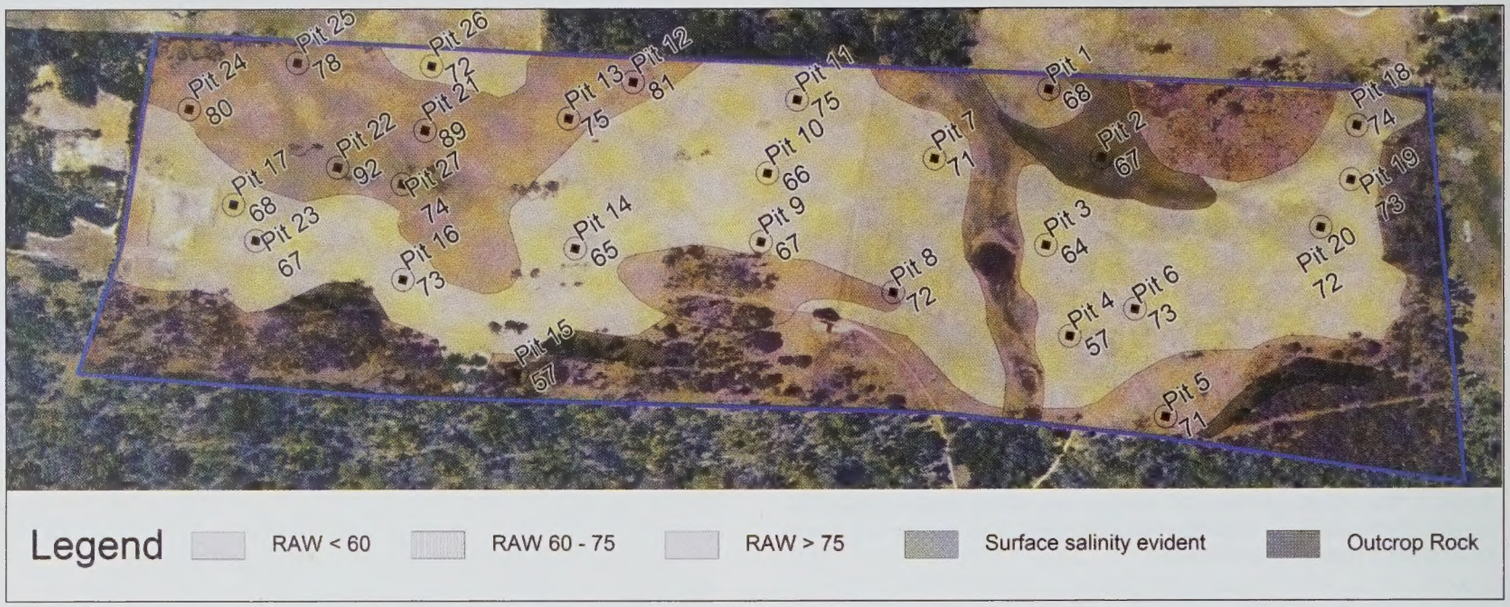
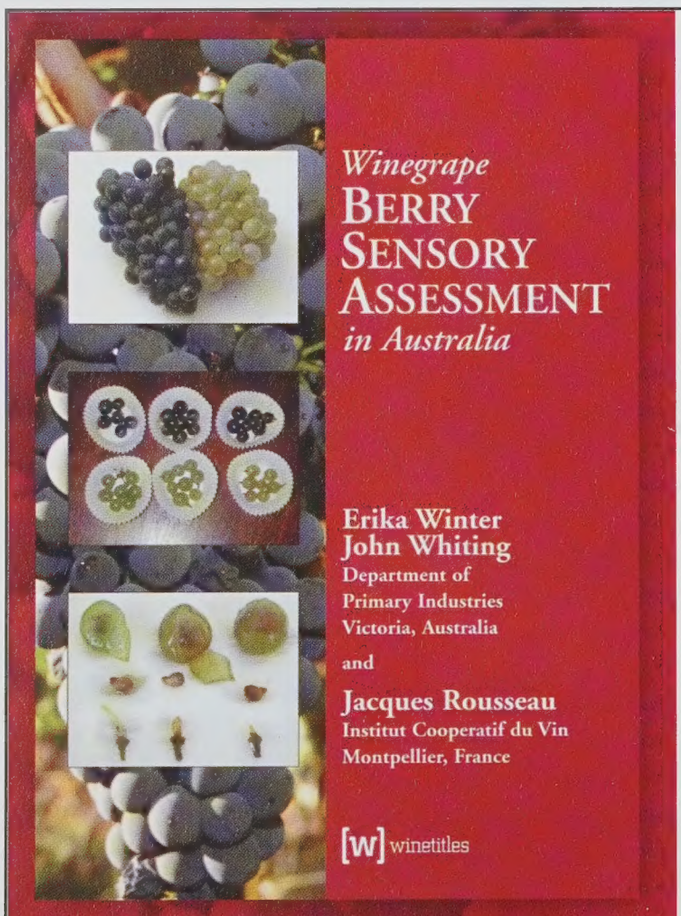


Figure II. The results of soil surveying, showing pit location and values of RAW (mm).

point, we know this procedure adds 1% to 2 % to establishment costs, but we have no doubt that this design process is part of "world best viticultural practice." Future vineyard managers — and wine consumers — will benefit. ■

Dr. Richard Smart, desk phone: 03-6394-1116, cell phone: 0418-656-480, residence: 03-6334-8838, fax: 03-6331-0849, email to: vinedoctor@compuserve.com, website: www.smartvit.com.au, or mail to: PO Box 350, Newstead, Tasmania 7250, residential: 71 Lyttleton St. East Launceston, Tasmania.



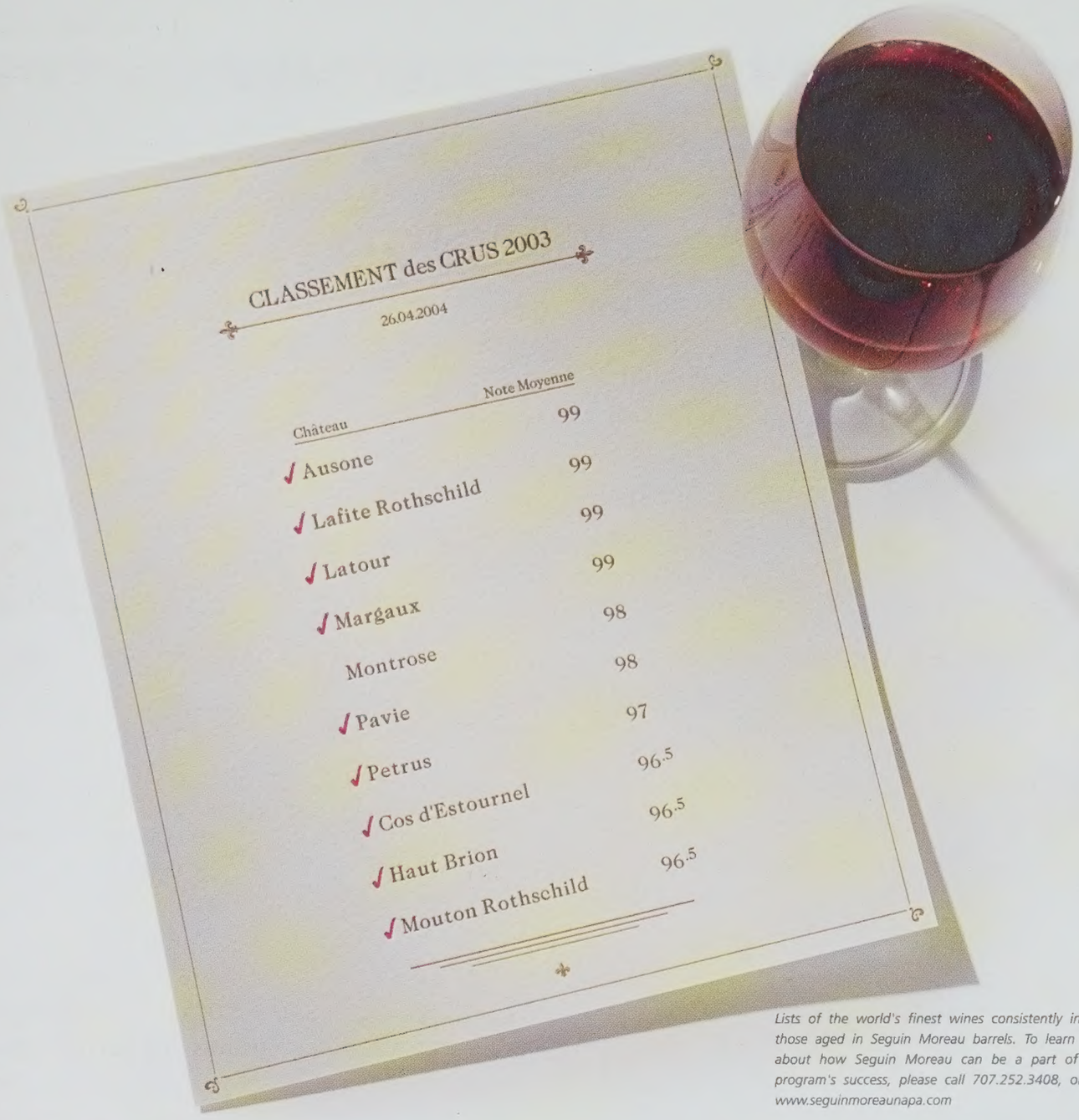
For grapegrowers and winemakers, this is a guide for assessing berries for ripeness and harvest scheduling. It contains detailed instructions on how to examine berries before harvest, according to 20 standardized and industry-tested criteria, by judging stems, skins, pulp, and seeds. A 1 to 4 scoring system is employed which can be used in repeated assessments to build databases on varietal performance, and berry development over sites and years.

The aim of the book is to provide a basis for a uniform language on crucial berry attributes throughout the Australian wine industry.

The method was designed by the Institut Cooperatif du Vin in southern France and was adapted to Australian conditions by Erika Winter and John Whiting, together with an industry reference group.

It will change the way you look at your grapes, help you to understand how berry characteristics change, and encourage you to monitor, assess, and experiment.

For sale on ***PWV* Bookshelf** for $28.



Lists of the world's finest wines consistently include those aged in Seguin Moreau barrels. To learn more about how Seguin Moreau can be a part of your program's success, please call 707.252.3408, or visit www.seguinmoreaunapa.com

A Good Friend of Yours Just Did a Little Barrel Tasting of French Wines

The Score? Nine out of the top-ten Châteaux trust Seguin Moreau

It seems like Seguin Moreau is scoring points with virtually all of the top winemakers in the world. In fact, the wines made by our customers rated very favorably during barrel tastings completed in March of this year†. This strongly suggests that there exists a partnership between exquisite *terroir*, great winemakers like you, and the barrels crafted by the Master Coopers of Seguin Moreau. The numbers say it all: Seguin Moreau quality helps you score valuable points with the critics – and the consumer.

Seguin Moreau. *Always one step ahead.*

†Source: *The Wine Advocate*, Issue 152, Closing Date 4.26.04

Big Pot Benchgrafts

the best option for your vineyard–

Quality

Measure a vine's quality by its performance. Compare the growth of our Big Pots to any competing vine and notice the difference. Your vines arrive pre-sorted and ready for the field. Direct planting with a complete root system allows for immediate establishment.

Flexibility

Enjoy the flexibility of year round planting. Reserve your rootstock now and specify your scion within months of your planting. Order from an outstanding selection of scion varieties and clones.

Duarte Nursery, the best option for you–

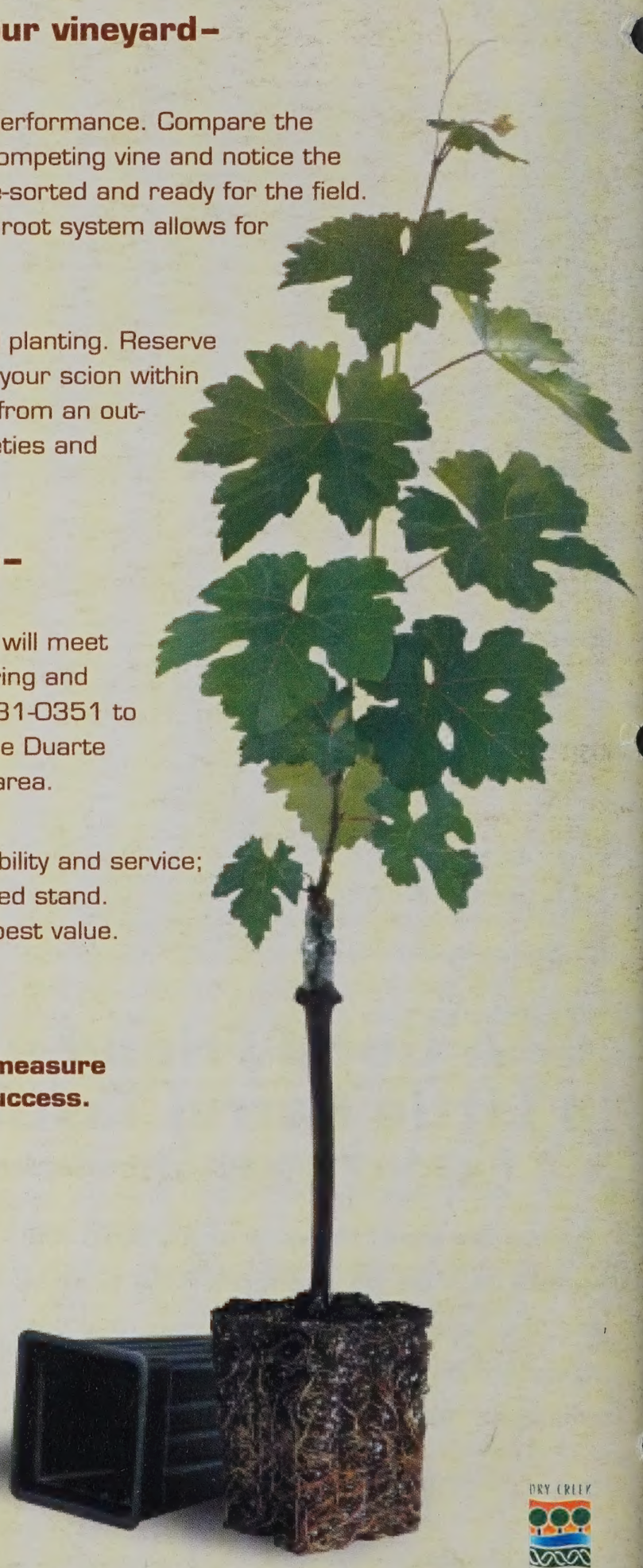
Service

The best vineyard service team will meet you at your vineyard before, during and after planting. Call us at 209-531-0351 to arrange an appointment with the Duarte Viticultural Consultant for your area.

Value

Combine our performance, flexibility and service; plus free delivery, and guaranteed stand. Duarte Nursery offers you the best value.

At Duarte Nursery we measure our success by your success.



DUARTE NURSERY INC.

Hughson, California
Phone (209) 531-0351
Fax (209) 531-0352
(800) GRAFTED
www.duartenursery.com

DRY CREEK

TECHNOLOGY PARTNER